

## EXPERIMENTS IN SUPERNORMAL PERCEPTION AT A DISTANCE <sup>1</sup>

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### PART I

#### PRELIMINARY EXPERIMENTS

*Introduction.* Experiments in telepathy in which the agent and percipient are separated by a distance of many miles possess one indisputable advantage over those where agent and percipient work in the same room or in adjoining rooms. In the latter type of experiment it is extremely difficult to rule out entirely the possibility that the agent or transmitter may unwittingly and unintentionally convey information to the percipient or guesser by means of slight movements, changes of tone, facial expression and the like. In a word, the guesser may be getting clues through his ordinary channels of sense though neither he nor the agent may be aware of it.

Such accidental conveyance of knowledge is hardly to be assumed in cases where the agent and percipient are miles apart at the time of the experiment provided always that reasonable precautions have been taken in selecting and guarding the objects intended for transmission. Deliberate collusion between the experimenters and percipients is still, of course, a contingency to be reckoned with, but for reasons which will be apparent later I feel perfectly certain will not be suspected in the present experiments.

In spite of their indubitable advantage in excluding a direct transfer of ideas by normal means experiments at a distance are relatively rare in comparison with those in which the parties concerned are in close proximity. Nor can it be claimed, I think, that such experiments as are on record have been remarkably successful or for the most part conclusive in any way. There are, of course, scattered throughout the annals of the society numerous cases of apparent spontaneous perception at a distance and in certain of these the wealth and convergence of detail are so circumstantial as to make chance coincidence an unlikely explanation.

<sup>1</sup> [As in the case of the recently published report on experiments in clairvoyance (*Proceedings*, xxxix. 375-414), the reader must be warned that the results of the experiments have been entirely negative.—HON. ED.]

Next to the spontaneous cases we have a type of experimentation which is best illustrated by the Miles-Ramsden<sup>1</sup> and Wales-Samuels<sup>2</sup> records. In the latter example the agent, here represented by Mr Hubert Wales, did not as a rule deliberately choose an object or event to be transmitted at a definite time, but allowed the percipient, Miss Samuels, to post him details of her dreams which were then compared with *any* appropriate events that had happened in Mr Wales's environment during the preceding day. A similar procedure was adopted in many of the Miles-Ramsden experiments. The scope for chance coincidence under such conditions is of course extremely large and practically incalculable, and moreover in cases where the percipient can picture the type of scenery in which the agent is situated, he or she has a tolerable chance of scoring hits by imagining events natural to that scenery. *A propos* of Mr Wales's experiments I must mention that during the months of August-September 1926, at Miss Samuels's suggestion, I assumed the rôle of Mr Wales and received every day from Miss Samuels a copy of her dreams and impressions. During the whole of this experiment I was staying near Bettws-y-Coed in North Wales, while Miss Samuels, whom at that period I had corresponded with but never met in the flesh, remained in London. The result was practically a complete failure. I must add, however, in fairness to Miss Samuels, that while she might easily have seen me climbing mountains and peering down precipices, she in fact did nothing of the kind, and the type of dream she described would I believe have had an equal chance of being realised in the flats of Essex or on the hills of Wales.

So far as my own experiments with Miss Samuels are concerned, I should declare unhesitatingly that there was no supernormal perception on her part, but I confess that when I came to read Mr Wales's long report, I felt curiously unable to make up my mind whether the most striking coincidences there recorded were genuine cases of telepathy or only very lucky hits. But in such cases as the "Hannah Blodgett" case of Mrs Piper and in many of my own experiences with Mrs Cooper, I have never entertained any serious doubt that the coincidences were due to something more than the blind play of chance.

My recent experience with the guessing capabilities of over 600 people for a period of over a year has only confirmed me in the view that the success of such mediums as Mrs Piper, Mrs Leonard, and Mrs Cooper, cannot, whatever else their explanation, be ascribed totally to chance.

I have found that the average guesser experimenting over many

<sup>1</sup> *Proceedings* (1907), xxi. 60-93; (1914), xxvii. 279-317.

<sup>2</sup> *Proceedings* (1920), xxxi. 124-217.

weeks under conditions which I shall presently describe, wins indeed a partial success at long intervals, but does not succeed in piling up one sharply defined success upon another.

But in the Wales-Samuels records, as in so much of the work in experimental telepathy with objects ill-adapted to statistical computation, there is a vague intangible quality about even the best hits. Many of the remarks of the percipient can indeed be made to apply to circumstances in the environment of the specified agent if a too rigid time limit is not imposed, but one feels that one could fit these same remarks to the day's experience of many another individual in the world. In short, one feels that the coincidences are not sufficiently detailed to produce a conviction that they are uniquely applicable to one set of circumstances and to no other. The same observation, of course, would apply to a fair amount of the material obtained at Mrs Leonard's sittings at which the time limit is often so wide as to be practically non-existent, but I feel certain that in a series of sittings like the Troubridge-Radclyffe-Hall series, the ensemble of statements furnished over the entire period would not be applicable to any other persons than the actual sitters or their immediate circle.

Experiments in telepathy at a distance in which the conditions are more rigid and sharply defined than those described in the Miles-Ramsden or Wales-Samuels reports have been recorded from time to time during the past twenty years. We have, for instance, the experiments of Usher and Burt<sup>1</sup> in 1907, in which an agent in Bristol attempted to transmit drawings and playing cards telepathically to a percipient in London at pre-arranged times. In a second series by the same authors the agent was in Prague and the percipient in London. The resemblance between the drawings of percipient and agent claimed by Messrs Usher and Burt as "successes" appears in my judgment to have been so occasional and so slight as to be practically non-existent. Thirty attempts were made to transmit the image of a playing card, and here the experimenters seem to have been more successful. I have scored the first 25 of these guesses on Fisher's system, and the mean score is 16.11, which gives a deviation from the theoretical mean (11.18) corresponding to  $2.46 \times$  standard deviation. Such a result might be expected to occur by chance about once in 33 such sets of 25 guesses. The result is suggestive, but of course inconclusive.

Of recent years various experiments of a similar kind have been carried out by individual members of M. René Warcollier's group for experimental telepathy, the agents and percipients being in

<sup>1</sup> *Annales des Sciences Psychiques* (1910), xx. 14-21, 40-53. One saving virtue of the work of Usher and Burt is the detailed description of every experiment. We are not given snippets.

different parts of France. A number of attempts at transmission of ideas and drawings from New York to Paris and *vice versa* were made in 1924 between an American group under the direction of Professor Gardner Murphy, and a French group under M. René Warcollier.

To form a critical estimate of either Warcollier's home experiments (carried out in Paris at the Institut International Métapsychique or elsewhere) or of his trans-Atlantic attempts, is extremely difficult for several reasons. M. Warcollier is an indefatigable experimenter, extremely ingenious in planning new experiments, and his enthusiasm has given a great stimulus to the study of telepathy on the Continent and in America. Moreover, he has brought considerable powers of introspection and psychological insight to bear on the interpretation of his results. But as M. Warcollier's methods and conclusions diverge very considerably from those of the present investigation, a few suggestions and friendly criticisms will not, I hope, be out of place.<sup>1</sup>

In the first place it does not seem to me that M. Warcollier has paid quite sufficient attention to the work of demonstrating beyond cavil the basic fact of telepathy. He has perhaps been a little too occupied with the psychological mechanism of the process. His various reports consist largely of collections of favourable examples which seem to be expressly chosen to illustrate various aspects of the mechanism of transmission and reception. Some of these examples of telepathy are certainly striking, but I do not think their individual quality is sufficiently high to compel belief in their supernormal character. Although the subject matter chosen for transmission—consisting as it does of complicated sketches, grotesque combinations of objects, gestures, etc.—precludes a strict application of the laws of probability, yet I do not think this need prevent M. Warcollier from instituting a series of control experiments to test his fundamental hypothesis of telepathy.

A large number of drawings executed by his various agents and percipients might be copied on to similar slips of cardboard and these mixed in a bag. A committee could then draw out a considerable number of pairs or trios of sketches from the bag and adjudicate marks according to the amount of resemblance shown by each pair or group of sketches. Corresponding pairs or groups could then be chosen from Warcollier's actual experiments and scored in a similar way. This is, of course, merely intended as a very rough suggestion of the way in which a control might be organised.

Another suggestion I would make is that M. Warcollier should, in his reports, give us more information as to the exact conditions

<sup>1</sup> See also my letter in the *Journal S.P.R.* (1931), xxvii. 130-5.

under which each evening's work is carried out. I can perhaps best illustrate my meaning by an example. On p. 42 (Plate 1) of his *Conférence sur la Télépathie Expérimentale* (1926) M. Warcollier records that on 24 October 1925 M. De. drew a sketch resembling part of a flight of stairs, while on the same evening Mme M. drew an outline which bears a certain resemblance to the drawing of M. De. One would like to be told (a) whether the drawings were executed at the same time and, if not, what was the interval of time between them, (b) how many sketches were made by M. De. and Mme M. in the course of the evening, (c) if several sketches were made by one or both, what was the guiding principle of selection? It is, of course, certain that if vast numbers of experiments are made week after week and year after year, chance alone will produce coincidences of varying degrees of complexity, and a judicious selection of suitable cases could doubtless be made which would appear to illustrate a theory of telepathy previously held by the experimenter or even suggest to his mind a novel theory. But if these cases are not really cases of telepathy, what becomes of the theory?

Moreover, it appears to me that many of the psychological phenomena noted by M. Warcollier are quite consistent with other hypotheses than that of telepathy. When, for instance, two members of M. Warcollier's group draw sketches on the same evening which show a considerable degree of resemblance, this may be due to supernormal contagion it is true, but it may also be due to a variety of normal causes. It may be that these two persons had, in the morning, been both impressed by some striking advertisement in the same newspaper or on a hoarding. They would perhaps be entirely unable to recognise the common source of their inspiration when they came to make their drawings.

Speaking of his experiments carried out at the Institut Métapsychique, in which the agents and percipients were in different rooms, M. Warcollier states:<sup>1</sup> "At the beginning of our experiments we obtained only 6 per cent. of successes, then we passed to 25 per cent. and to 35 per cent., not absolute successes but relative ones supplying evidence sufficient to maintain scientific curiosity in us." We have, of course, no exact definition of the term "success" here, and we can only form a rough judgment from the specimens cited by the author in his various reports.

For instance, it is not clear whether M. Warcollier claims as a success a coincidence *not predetermined* by the experimenter. He certainly quotes many cases in which the percipient's impression does not correspond with the object selected by the agent but with some incident which happened in the agent's environment previous

<sup>1</sup> Institut Métapsychique International, *Les Conférences en 1926*, p. 41.

to the experiment. Are these coincidences counted in the 35 per cent. of successes?

It would appear, in the large majority of cases, that the material for transmission is chosen by personal preference and not on a chance basis. That is, the objects are not chosen at random from a large collection of varied types but by individual caprice or as being suitable for testing a certain psychological theory. Now, may not the increase from 6 per cent. to 35 per cent. in the number of successes be due to the fact that the members of the little group are becoming familiar with one another's mental preferences? If *A* knows that *B* has a passion for drawing cats, he has more chance of making successful hits than *C* who is a stranger to *B*. Of course, if coincidences are admitted with events not predetermined by the experimenter, the scope of chance is indefinitely enlarged. It is as if a man, aiming at a target, missed, and then claimed that at least he had hit a neighbouring tree.

M. Warcollier tells us that his percipients are seldom very successful in guessing numbers, letters of the alphabet and playing cards. Now this is very disconcerting when we remember that many of the earlier experiments of the S.P.R. showed a good deal of apparent success with just such material. It may be, of course, as M. Warcollier suggests, that when the percipient is asked to guess a number, the conscious action of his mind and his predilections for particular numbers, inhibit the telepathic impression from emerging; but another explanation appears to be equally probable. Letters and numbers are perfectly clear cut and, as a rule, the alternative to success is absolute failure. But with concrete objects, pictures, etc., it is not so. Even when the percipient has not guessed the object chosen by the agent, it is often possible for the experimenter to claim a partial success on the grounds that there is some associative connection between the percipient's impression and the actual object. In cases where the association is obvious to everyone as, for instance (Agent: Australia—Percipient: Kangaroo) no one could object to the scoring of a success, but the association may be of a much vaguer sort, as for example (Agent: Cobra—Percipient: a Tropical Scene). If we admit such coincidences as the last, the scope of chance is, of course, much widened. And when we consider cases in which the associative link is obvious only to the percipient himself, we are on very precarious ground, as it is so easy to discover associations in one's own mind even between, apparently, incongruous ideas. If, as M. Warcollier seems to believe, telepathy often works by very obscure associations apparent only to the percipient himself, then it is difficult to see how science is going to deal with it objectively at all.

It is hoped that M. Warcollier will in the near future, while still

retaining the material which appears to yield him the most success, organise such a series of control experiments as will confirm or confute his fundamental hypothesis of telepathy.

*The origin of the present experiments.* The first use of wireless as an aid to the organisation of mass experiments in telepathy was made by Professor Gardner Murphy of Columbia University. Professor Murphy carried out on 3 March 1924 an experiment in which a group of forty agents operated from Chicago. The experiment appears to have been highly inconclusive, owing perhaps to the lack of control tests and statistical standards of comparison.

On 16 February 1927 the British Broadcasting Corporation kindly allowed the use of their organisation for the carrying out of an experiment in long-distance telepathy by the Society under the direction of Dr Woolley, Sir Oliver Lodge acting as announcer. In this experiment a small group of agents, one of whom was the writer, attempted to broadcast telepathic impressions of objects shown to them by Dr Woolley for a period of three minutes each. Replies from 24,659 listeners were received and examined by the Society. The impossibility of securing a second evening for the purpose of a control experiment caused the subsequent evaluation of the results to be somewhat inconclusive.

When, therefore, Dr Woolley suggested in July 1927 that I should carry out a series of further experiments with a batch of the apparently successful of the B.B.C. percipients, I readily agreed. In the second week of September 1927 a notice was drafted and sent out to some 150 persons who had scored partial successes<sup>1</sup> in the February experiment, asking them if they would be willing to devote half-an-hour each Wednesday evening in their own homes for at least three months to recording their impressions of objects which would be shown to a group of agents meeting each week at the Rooms of the Society. Each person who expressed willingness to co-operate, was on 30 September sent a copy of the general instructions which follow.

#### GENERAL INSTRUCTIONS

1. The experiments will take place each week on *Wednesday evening between 8.30 and 9 p.m.*, beginning on Wednesday, October 5th, 1927, this time suiting the majority of those who have consented to take part.

2. The attempts at transmission will in general be made from the Society's headquarters at 31 Tavistock Square, London, W.C. 1, but on certain evenings the agents may attempt to transmit from their own homes.

3. Three experiments will, as a rule, be attempted during the half-hour, ten minutes being devoted to each experiment.

<sup>1</sup> For examples of these see Dr Woolley's paper in *Proceedings* (1928), xxxviii. 1-9.

4. On the day of the experiment, please see that your watch or timepiece is adjusted to Greenwich Mean Time. Whenever possible, this adjustment should be made by means of the wireless time-signal of the same day as the experiment.

5. You will probably find it advantageous to work in a darkened room, reclining comfortably on a couch or easy chair. In the past the best results would appear to have been obtained by using this method. Try to shut out all sense impressions from outside. This is best done by working in a quiet dark room. Having made yourself comfortable, endeavour to compose your mind to a state which resembles that immediately preceding sleep. Do not let your mind dwell on the events of the day, but try to keep it as passive as possible while holding fast to the simple idea that you are going to visualise something, or if you work by mental hearing, you will keep your mind awake only to the idea that you are going to hear something.

6. When you receive impressions that you feel to be telepathic, in order *not to disturb and break up your passive state*, you will find it best to call out your impressions *aloud to a friend who, sitting at a table with a torch and a watch, will note down each impression together with the exact time at which it occurs.*

7. All impressions whether of sight, hearing, smell, taste, touch, emotion, or mental pictures, should be noted together with the corresponding times.

8. At the end of the experiments copy your notes *on to a postcard if there is room for them.* Otherwise use a letter. *Underline those impressions which seem to you to be most telepathic. The postcard or letter should contain your full name and address, and should be witnessed by the friend who assisted you by making the notes.*

9. In general you will not be told what is the nature of the object or idea the agents are trying to transmit, *i.e.* whether it is a playing card, picture, etc. The reason for this is that it is not advisable for your imagination to be switched off on to any definite track.

In certain experiments, however, detailed instructions may have to be given, and you will be duly notified of these before the experiment.

10. If on the morning following the experiment you remember any striking or curious dream which you think may have a telepathic origin (a deferred or latent impression), the Society will be very grateful if you can kindly send them an account of it.

11. Please post your cards or letters (witnessed and bearing full name and address) to :

The Society for Psychical Research,  
31 Tavistock Square,  
London, W.C. 1.

Please mark the envelope or postcard—"Telepathy."



All letters and postcards should be posted if possible on the same evening as the experiment, or at latest should leave by the first post on the following morning.

We hope that you will not be discouraged by not hearing immediately the results of each experiment. By withholding the results until the end of a series it is hoped not to interfere with the experiment as a whole. Although it will not be advisable to post to you details of successes week by week, you will be furnished with a complete account of your impressions at the end of the series.

*Statistics of percipients, October 1927-July 1928.* Leaving aside 8 members of M. René Warcollier's group for experimental telepathy who joined the present experiment in February 1928, there were 127 persons who acted as percipients during the first year's work. Of these 127, 118 resided in England and Wales and the remaining nine were distributed as follows: five in Scotland and the Shetland Isles, three in Ireland, and one in Budapest (no. 45A). Only two of the 127 percipients (nos. 75 and 37) were personally acquainted with me in October 1927, but two others (nos. 13 and 36A) made my acquaintance during the year.

The first year's work extended over 36 weekly sessions, and the percipients may be classified as follows: four percipients took part in 30 or more weeks' work, 16 in 20 or more, 39 in 12 or more, 90 in four or more, and 37 in less than four weeks' work.

*The personnel of the agents, 1927-1928.* The first 22 sittings (5 October 1927-14 March 1928) were held at the Society's Rooms at 31 Tavistock Square. In addition to myself, the agents during the first 12 weeks (5 October-21 December 1927) were Mr and Mrs Fernald, Miss Hood, and Mr Odell, the last of whom joined the group on 2 November. All these ladies and gentlemen, with the exception of Mr Odell, had acted as agents on the occasion of the B.B.C. experiment of February 1927, and the best thanks of the Society are due to them for the large amount of time they gave up to the present experiment.

After December 1927 Mr and Mrs Fernald and Miss Hood were unfortunately unable to continue their valuable assistance owing to pressure of other work. Between 11 January and 1 February Miss Newton, Miss Carruthers, Col. Hayward, Mr Robertson, and a friend, very kindly stepped in to fill the gap, and the Society wishes to thank these for their kind interest in the experiment. Between 8 February and 4 July 1928 the work of transmission was carried out in the main by a new group consisting of Prof. and Mrs J. Mackenzie, Mr and Mrs Hughes, Mr Odell, and myself. On 21 March the place of transmission was, mainly for the convenience of Prof. and Mrs Mackenzie, transferred from 31 Tavistock Square to their house at 2 Adelaide Road, Chalk Farm, N.W. To

Prof. and Mrs Mackenzie the warmest thanks of the Society are due for their kindness in providing a home for the experiment for upwards of two years. Not only have Prof. and Mrs Mackenzie taken part regularly in the weekly transmissions; they have also on several occasions taken charge of the experiment on evenings when I was unavoidably absent. To Mr Odell, a Member of the Society, we owe a special debt of gratitude. This gentleman not only attended a large number of the 1927-1928 sittings but also assisted at the majority of the 1928-1929 meetings, from which he had to travel to his residence at Kingston-on-Thames at the late hour of 11 p.m.

In addition to the above-mentioned names, we would thank Mr Theodore Besterman for taking an active part in the sitting on 19 October 1927; Miss Wallace for attending a sitting on 18 January 1928; Miss Boucher James for attending sittings on 22 February 1928 and 7 March 1928; Miss B. J. King for attending a sitting on 4 July 1928; Mrs Lewis and Mrs Hall-Haines and her sister, who were present on 30 January 1929.

*Psychic qualifications of the principal agents.* In the opinion of many investigators it is not everyone who can act successfully as the agent in telepathic experiments. From the records of sittings with good mental percipients like Mrs Leonard it would certainly appear that the minds of some individuals are more easily "penetrated" by the medium than those of others. Certain persons seem to be given a very considerable amount of supernormal information at sittings while others come away from every sitting totally unconvinced that the medium has made any real contact with their present or past environments. In the opinion of Dr T. W. Mitchell it is those persons who possess a slight degree of mental dissociation that will be most accessible to penetration by a good percipient. Such persons are often those whose minds possess strong undercurrents of activity which are never consciously brought to bear upon the pressing needs of everyday life. People of this type often possess stores of useful mental goods which they are unable to bring at a moment's notice into the mental shop-window of consciousness. We all of course possess a vast number of mental impressions which at any given moment lie far beneath the threshold of consciousness. But in certain individuals this hidden material would appear to be more organised and active than in others. Not infrequently these mental streams cut off from the main river of conscious life find an outlet by means of automatic writing. Poems, literary compositions, answers to questions upon topics of interest, passages from books read in childhood, are written without hesitation by the subject whose conscious mind is only vaguely aware of the movements his hand is making.

It is most probably these mental undercurrents that are perceived by the trance consciousness of a psychic medium. If this theory is correct the people who are capable of producing automatisms ought to make the best agents in telepathic experiments.

It must be remembered, however, that mediums seldom seem to divine the thoughts that are in one's mind at the moment. They give us rather details of incidents which have impressed us in the past—most often in the recent past—but which are not occupying our thoughts at the precise hour when we visit the medium. I personally have found that it was difficult for a medium to give me a name when I was holding that name in my mind. A little later in the sitting when I was thinking of something else the name was given correctly. We ought therefore in telepathic experiments always to make allowance for the possibility that ideas may be capable of being transferred to a percipient only when they have ceased to occupy the conscious mind of the agent. In the present experiments, in cases where two or more objects were concentrated on during the same evening opportunity was given for the percipients to record impressions relating to object no. 1 in the interval when object no. 2 was being thought of by the agents.

We must now enquire whether or not there was any *a priori* reason to believe that the persons who acted as agents in the present series of experiments possessed any special qualifications for this rôle. The agents who took part regularly in the main experiment (1928-1929) were Prof. J. S. Mackenzie, Mrs Mackenzie, Mr Odell and myself. Prof. Mackenzie has informed me in writing that in the year 1925 he carried out ten or more experiments with a friend, Miss Fox, Prof. Mackenzie acting as agent. In all these experiments Miss Fox was the percipient and remained at Clifton (near Bristol). For approximately the first two-thirds of this series of ten experiments Prof. Mackenzie was at Brockweir near Tintern, and for the remaining experiments he was at Cambridge. As to the results of these experiments I will quote Prof. Mackenzie's own words from his letter to me (13 September 1931): "Undoubtedly the successes were much too detailed to be due to chance." Prof. Mackenzie, I should mention, is Emeritus Professor of Logic and Moral Philosophy in the University of South Wales. He was a Fellow of Trinity College, Cambridge, and is a distinguished writer on ethics and philosophy. In a book published within the last few months on *Cosmic Problems* he makes some reference to his psychic experiences. Prof. Mackenzie has only once consulted a (well-known) medium. Two intimate friends who have both been dead several years purported to communicate. "Their communications," says Prof. Mackenzie, "were very characteristic but comparatively trivial."

Mrs Mackenzie "considers that she has had some success with mediums, but thinks it best not to give names or particulars. She may be writing on the subject herself." As regards experiments in telepathy Mrs Mackenzie "has nothing to report." Mrs Mackenzie, I should add, is a distinguished educationalist and very well known. Though I am not at liberty to give any details of Mrs Mackenzie's experiences with mediums I may venture to say that a year or two ago she mentioned some incidents which impressed me very favourably.

I need hardly say that Prof. Mackenzie's judgment upon his experiments with Miss Fox, coming as it does from so cautious and critical a thinker, must be accorded great weight.

Miss Fox (Percipient no. 31A=622) took part in both the 1927-1928 experiments and in the 1928-1929 series. It will be seen by reference to Table I that no. 31A=622 did thirteen weeks' work in the session 1927-1928, scoring two successes—one on 8 February 1928 and the other on 16 May 1928. One of these successes is of the "previsional" type (16 May), and on this occasion Prof. Mackenzie was present as agent. On the other occasion (8 February) only Mrs Mackenzie was present. In the 1928-1929 series the percipient did only three weeks' work and did not score any success (score=0/180). She was at Bristol during these experiments and possibly her psychic powers were temporarily in abeyance.

I have known Mr Odell for several years. A man of scientific attainments and cautious critical habits of mind, he is keenly interested in psychical research. He informs me that he has never sat with a medium but that he has acted as agent sometimes in telepathic experiments. He has had one or two successes as agent but he does not consider these to be beyond what chance could have produced. He considers that he has no special psychic powers. Of this I am not able to judge, but I can say that his genial and sympathetic personality made him a most valuable asset at our weekly meetings. If Mr Odell was absent things never seemed quite the same.

Lastly there remains myself to account for. I am, I believe, the only one of the little group that has ever been afflicted with the mental distemper of automatism. I first discovered in the summer of 1923 that if I closed my eyes and concentrated hard upon some trivial formula of mathematics and then abandoned conscious control of my hand to a nervous impulse, I could produce coherent writing. This writing sometimes differed in character from my normal handwriting. It could only be produced, I found, while my mind was intensely distracted by hard conscious effort, and when I brought my mind back to what my hand was doing the writing would cease abruptly. There was never any real com-

pulsion to write, for I was able to stop whenever I wished. Moreover, I often found a very great difficulty in getting started. Almost invariably the writing took the form of literary composition, and essays, verses, etc., were produced. Many of these purported to emanate from deceased authors. I need only mention the "Oscar Wilde" scripts. I consider it in the highest degree probable that many of the facts contained in these writings could never have been normally known to me even after allowing for the omnivorous quality of my reading. Since December 1928 I have abandoned this strange form of amusement, especially as I became increasingly conscious that it was followed by lassitude and nervous irritation. I mention it here for the sole purpose of recording that to some slight extent at any rate I might be supposed to possess some of the characteristics of an "agent."

But in point of fact I may claim to have had a considerable amount of success with certain mediums, especially with Mrs Blanche Cooper and Mrs Leonard. Many readers will be familiar with the case of "John Ferguson" contained in my report on Mrs Cooper.<sup>1</sup> The most rational interpretation of this case is to be found in the hypothesis that the medium had during the sittings intermittent access to the subconscious levels of my mind. It is true that throughout my sittings with Mrs Cooper my right hand held one of the medium's hands; that is to say, there was contact. Nevertheless it would be a far-fetched explanation to suppose that complicated messages such as are recorded in my report could have been communicated to the medium involuntarily by the mere pressure of fingers and without any pre-arranged code.

Unconscious whispering on my part seems also a far-fetched assumption, and I doubt if the case of "Gordon Davis" could be satisfactorily accounted for without the hypothesis of clairvoyance. In the case of "John Ferguson" at least some form of telepathy from the subconscious levels of my own mind to those of Mrs Cooper seems the most rational supposition. Whether discarnate human beings played any part in the mechanism of this transfer I do not know. Nor do I feel competent to express an opinion on questions so vast and difficult. I will merely say that on occasions it certainly seemed as if I were an "agent" and Mrs Cooper had partial access to my memories. But it was hardly ever those thoughts that were in clear conscious focus at the moment which were picked up by the medium.

In sittings with Mrs Leonard, where there was no contact, I noted one or two cases in which telepathy from my mind to that of Mrs Leonard seemed on the whole the most probable explanation. One

<sup>1</sup> See my "A Report on some communications received through Mrs Blanche Cooper," *Proceedings* (1925), xxxv. 471-594.

such instance I have given in my Report on Mrs Cooper (p. 483). A name of a village which I had been discussing with Mr Davis in the train on the way to the sitting was given with approximate accuracy by Feda half-an-hour later. There was another incident of a similar nature given at my second Leonard sitting which would take too long to detail here.

Turning now to the principal agents in the preliminary (1927-1928) series, these were Mr C. B. Fernald, the dramatist, Mrs Fernald, Miss P. Hood, and myself. In a letter dated 18 September 1931, Mrs Fernald states that in her sittings with Mrs Leonard and Mrs Warren Elliott she was definitely given information that was super-normal and beyond chance. A case of apparent precognition obtained by Mrs Fernald at a Leonard sitting was published in *Proceedings* (xxxvi. 327-32). Mrs Fernald also states that both Mr Fernald and Miss Hood have had supernormal information given them at sittings with mediums. Mr and Mrs Fernald have practised a form of automatism in their own home, using a kind of ouija board with pointer and alphabet. At many of these sittings Miss Hood was present. Mrs Fernald found that with her hand resting on the slider she was able to cause the pointer to move by herself without assistance from the others. Mrs Fernald and Miss Hood with their hands on the slider were able to obtain messages. In the earlier attempts with the board it was thought that Mr Fernald was the prime agent in causing the pointer to move, but this view was modified when Mrs Fernald and Miss Hood obtained messages without his assistance. Mrs Fernald does not think that Miss Hood ever tried to work the pointer alone. I gather that the communications received through the board purported to be messages from deceased persons who were known to the sitters in life.

*The additional agents.* Besides the regular group a certain number of the 579 percipients were asked to play the part of transmitters each week in the 1928-1929 series of experiments. Between 5 December 1928 and 6 March 1929, between 20 and 30 such additional agents were employed each week for one ten-minute interval. On 20 March and 27 March the numbers of these additional agents were 43 and 68 respectively. As a rule the same 20-30 agents acted for three or four consecutive weeks, after which period a fresh batch of persons were asked to co-operate. Exceptions arose, however, through people unexpectedly dropping out or being unable to take part on account of other engagements. During the whole period 105 persons acted as additional agents. Of these 37 claimed to have had psychic experiences through their own faculties of perception. One or two claimed to have had successes in previous telepathic experiments in which

they had acted as agents, but in the vast majority of cases the experiences described were experiences of psychic perception.

The object on which these additional agents were asked to concentrate in their own homes was of course the same as that shown to the principal group at Adelaide Road. In all cases it consisted of a postcard inscribed with a picture, number, letter or playing card, which was enclosed in a sealed envelope. Whenever possible this envelope was despatched to reach the agent on the day of the experiment in which it was to be used.

Accompanying the sealed envelope were instructions to the effect that the envelope was to be kept in a safe place unopened till 10 p.m., when it was to be opened in the presence of a witness. (For a copy of these instructions see below, p. 289.) The envelope bearing the signature of the witness was to be returned to the Society.

The choice of the batch of additional agents each week was made by Miss Carruthers, subject to certain instructions from me. Our 579 percipients appeared to belong to very varied cultural types, and we had of course absolutely no reason to suppose that any individuals or class of individuals would prove untrustworthy. We knew practically nothing about the occupations, etc., of the majority of the percipients except what had been given us in their letters. But broadly speaking, with the very limited information at our disposal we were able to recognise two classes: (a) private individuals, and (b) persons known to be in positions of public trust. Class (b) consisted of medical men, clergymen, army officers, naval officers, J.P.'s, university professors and graduates, barristers, etc. Without intending the slightest reflection on any members of class (a) it will be admitted by all that there are no more trustworthy people in the world than our English public men of whom class (b) is a sample. I asked Miss Carruthers to make her first selection of agents as far as possible from class (b). But so far as our records went class (b) was a small one and comprised only some 30-40 persons at most. Moreover, all the people asked were unable to take part on certain evenings. It was therefore found necessary to ask a good many private individuals to assist us by acting as agents.

To any one individual percipient the vast majority of the remainder must have been utter strangers, the names and addresses of whom he or she could not know. But it not infrequently happened that even in the provinces two or more percipients lived within a few miles of one another. To avoid therefore any suspicion of accidental leakage Miss Carruthers was careful to choose the agents from districts in which they were well isolated from other people taking part in the experiment.

But actually there are not the slightest grounds for believing that any leakage resulted from the use of these additional agents. The object tables, etc., show no statistical superiority in the experiments where additional agents were used. Further, there are no cases of individuals producing brilliant successes in such experiments.

*General Scope of the Experiments, 1927-1928*

The main object of the 1927-1928 experiments was to make a preliminary survey of the ground before attempting a statistical investigation of the subject on a larger scale. The objects of experiment were seldom adapted to statistical computation but consisted largely of picturesque toys, working models, animals, flowers. Playing cards, numbers, geometrical drawings, were hardly ever used, since the small numbers of percipients (19-62) who took part each evening precluded any serious statistical analysis. It was hoped, moreover, that a greater degree of success might attend the employment of material that was amusing and exciting to the agents. Common everyday objects which could be named by a single word, such as cup, plate, fork, were as a rule avoided, and the objects chosen were for the most part familiar objects in unfamiliar associations that were not likely to be guessed by chance. An example is (XXVII, 2 May [C]) when a toy bear pushed a ball between its forepaws. There was, in fact, nearly always plenty of scope for complex attempts at delineation on the part of the percipients.

Three such objects, referred to as (A), (B) and (C), were as a rule gazed at by the agents for ten minutes each, between 8.30 and 9 p.m.

The percipients were generally given no indication whatever of the nature of the three objects to be guessed, but they each received by post (on the day of the experiment if possible) a copy of the following notice.

*Wednesday [Date] 1928*

Three different objects will be shown, one each from

8.30—8.40 p.m.

8.40—8.50 p.m.

8.50—9.0 p.m.

Please record all impressions.

(Sgd.) [V. J. WOOLLEY or S. G. SOAL].

On two occasions, 2 November 1927 and 26 October 1927, the whole half-hour was devoted by the agents to reading aloud an exciting or gruesome story. On these two occasions, the usual notice to percipients was varied to read: "Please record all impressions between 8.30 and 9 p.m."



There were also attempts to transmit the ideas of exciting modern poems on 30 November 1927 (C); 7 December 1927 (B); 25 January 1928 (C); 14 December 1927 (C).

Two attempts, 14 December 1927 (B); 7 December 1927 (A), were made to transmit the tingling sensation of a high-frequency current. These seem to have failed entirely.

Two attempts to transmit a strong odour, on 21 December 1927 (C) and 20 June 1928 (B), also failed.

In all these variations of the usual routine, the wording of the warning notice to percipients differed in no way from the usual wording when three ordinary objects were the subject of experiment. The objects used in the 1927-1928 experiments were purchased by myself at the most irregular times and in the most diverse parts of London and Southend. On some occasions the objects were bought on the afternoon of the day of experiment, in which case they remained in a locked attaché case which never left my sight till the hour of the experiment. But on several other occasions the objects were purchased by me three or four days previous to the day of the experiment, and after purchase they were carried home in my attaché case and there kept under lock and key till the following Wednesday, on which day they were carefully wrapped in paper, tied up with string and taken to town in my case. During the whole of the morning these parcels remained in the locked case, which was left on the staff-room table of East London College. For large objects a suit-case was used. Once having left East London College, the attaché or suit-case was never out of my observation, and the parcels remained unopened till the time of experiment.

In selecting the objects for experiment, I sought after variety, distinctness of detail, humorous or striking combinations that mere guess-work would seldom hit upon. In this, I certainly succeeded, as the list of objects will show. We have now to examine how far the percipients succeeded in divining the ideas I had chosen.

#### *Summary of Results of Experiments, 1927-1928*

Except in the case of perhaps half-a-dozen percipients in all, there was no link of acquaintance between the regular groups of agents and the 127 guessers living in all parts of the United Kingdom. The percipients were not even provided with a photograph of the agents and could be expected to know nothing at the commencement of the experiment except that a group of persons, of whom I was one, would try to transmit ideas from a definite place at a definite time.

At the end of the first twelve weeks' work, a typewritten copy of a report of the first term's work was sent to each percipient. In this report appeared the initials of the agents for each week, together

with a full description of the objects of experiment and the results obtained. A second and similar report on the next twelve weeks' work was sent to each percipient shortly after Easter 1928. No further reports were issued till this paper was read before the Society in October 1930.

*The recording of the results.* The letters from percipients which arrived at 31 Tavistock Square, were opened personally by me every Friday afternoon, and the impressions recorded by each percipient were copied on to a large card bearing his or her name, address and identification number. On these cards special columns were allotted to the recording of the date and, wherever possible, exact time of each impression. As a rule, whenever a percipient scored any measure of success, I addressed to him a personal letter asking for further details, without of course, giving him any clue to the actual subject chosen by the agents. I also made a point of enquiring whether or not anything had happened during the past day or two in the percipient's environment to suggest such and such an idea to him, or whether he was able to account in any normal way for getting the impression.

*Statistics of Successful Hits, 1927-1928.* It has been possible to list all the successful hits in Table I. A few words of explanation regarding this table are necessary. In the first column we have the percipient's identity number, and where this particular percipient took part in the second series (1928-1929) his new number (always between 600 and 700) is added thus: 3=604, for convenience of reference. In the second column is a fraction the numerator of which gives the number of successful hits and the denominator the number of weeks' work carried out by the percipient. Thus the fraction  $\frac{3}{18}$  means that the percipient recorded impressions for 18 weeks and scored three successful hits. In the third column is given the date of the successful hit, and the object A, B or C to which it would appear to be relevant.

The last column shows the percipient's impression, and where possible, the interval A, B, C, in which the impression was recorded. Thus, if the two letters in the third and fourth columns are the same, A A or B B or C C, this implies that the percipient noted his impression during the same ten minutes as the object to which it relates was exhibited to the agents. C in the third column and B in the fourth column would imply that the successful hit was apparently of the nature of a "previsional" impression, while the order A-B indicates a deferred impression.

The letter N after an impression means that the percipient was able to account in a normal way for the emergence of the impression in his mind, while the letters N N indicate that he failed to find any obvious normal explanation.

Table I is of course to be read in conjunction with the list of objects (1927-1928) to which the corresponding references are attached. Percipients who did not score a single successful hit are omitted entirely from Table I.

Excluding for the moment the few percipients of M. René Warcollier's group who joined the experiment in February 1928, we have 127 percipients in all. Of these: (a) 75 failed to obtain a single successful hit; (b) 26 obtained one successful hit only; (c) 20 obtained two successful hits; (d) four obtained three successful hits; (e) two obtained four successful hits.

Of group (a) 10 had taken part in 12 or more weeks' work; 43 had taken part in four or more weeks' work, and 32 had taken part in less than four weeks' work. Of group (b) three had taken part in 20 or more weeks' work and eight had taken part in 12 or more weeks' work. Only one had taken part in less than four weeks' work. Of group (c) five had taken part in 20 or more weeks' work and eight in 12 or more weeks' work. The four percipients in group (d) had all done 18 or more weeks' work. The two percipients in group (e) had done 24 and 30 weeks' work respectively.

*The quality of the impressions.* About the vast majority of these impressions there is seldom anything so detailed as forcibly to convince the reader that the percipient has really "seen" the object on which the agents were concentrating. A simple object is sometimes named correctly, but the really important details are almost invariably lacking. Perhaps the most interesting case is that of no. 72. He wins only two successes, but he scores these two hits in only four weeks' work, and both are rather remarkable coincidences. The detailed description of the saucer and pipe (23 November 1927 [C]) used for blowing bubbles and the mention of the "Claw-like hands" on 2 November 1927, if mere guesses, are very extraordinary ones. It is unfortunate that this percipient (from Barnsley) was unable to continue with the experiments.

The impressions of no. 3=604 are also rather striking. This percipient, who obtained three interesting hits in 18 weeks' work, did not, however, justify his promise in the second year's work, in which his percentage score was 7.1 per cent., this being quite an average one.

*Coincidence in time.* Among the successful hits given in Table I there are 65 cases in which the coincidence or non-coincidence in time between the exposure of the object to the agents and the percipient's guess, is more or less definitely ascertainable—that is, cases in which we are able to say with fair certainty whether or not the percipient recorded his impression in the ten minutes A, B or C during which the object was being concentrated on. Of these 65 cases, there are 33 cases of coincidence (i.e. AA, BB or CC). By

chance we might expect about  $\frac{1}{3} \times 65 = 22$  such coincidences. This result is slightly favourable to the existence of an extra chance influence, but it is scarcely to be stressed.<sup>1</sup>

*M. René Warcollier's group.* At my invitation, M. René Warcollier in February 1928 very kindly arranged for his group for the study of experimental telepathy to take part in the Wednesday experiments, commencing on 15 February 1928. The same weekly notice was sent to M. Warcollier as to the British percipients; eight members of his group acted as percipients in the Wednesday experiments, sometimes meeting at the Institut Métapsychique in Paris to record their impressions. Unfortunately, with the exception of one member, Mme de Z., Wednesday proved to be an inconvenient evening for the members of the group, and a special experiment had to be arranged for Saturday afternoons, in place of the Wednesday experiment. I do not propose in this paper to give any account of these Saturday experiments. Possibly a separate report may be written on these experiments. In the present report I shall confine myself to the few experiments which the members were able to undertake on Wednesday evenings. I shall refer to M. Warcollier's percipients only by their initials.

These follow, with the number of weeks' work done by them in the session of 1927-1928 shown in brackets: Mlle L. (3), Mme C. (2), Mlle T. (1), M. R. W. (4), M. B. (1), M. J. B. (6), M. de S. (4), Mme de Z. (12). The only remarkable series of successful hits in the Wednesday experiments was obtained by Mme de Z., an automatic writer, who in 12 weekly experiments scored five hits, which were fairly interesting (see Table I).

During the second session (1928-1929) the Warcollier percipients continued with the Saturday afternoon experiments, but were generally unable to take part in the Wednesday evening work. It is, therefore, impossible to make any serious comparison between the results obtained by this group, and those of the English percipients.

*Coincidences between percipients' impressions.* It frequently happened that two percipients living widely apart recorded similar impressions at approximately the same time, though these impressions appeared to be in no way related to the object chosen by the agents. I give a few of the more interesting examples from the 1927-1928 experiments.

(a) *1 February 1928.*

No. 88 (8.40-8.50): "A Japanese woman reclining and holding up an umbrella."

<sup>1</sup> See, however, p. 238 below, where the same problem is discussed on a larger scale.

No. 89 (8.50) : " Japanese umbrella."

(This is the kind of case which can possibly be disregarded, since no. 88 and no. 89 were in the same room.)

(b) 8 February 1928.

No. 45A (Budapest) : " Bunch of beautiful Red flowers."

No. 48 (England) : " Bunch of Red flowers."

(Here the percipients are remotely separated, but the common impression is, after all, a very ordinary one.)

In the following instances, the correspondences, though not particularly complex, are much more out of the way.

(c) 25 January 1928.

No. 34 (8.40 p.m., Sevenoaks, Kent) : " Messenger with wand, perhaps *Hermes*."

No. 92 (8.54 p.m., Basingstoke, Hants.) : " Shoulder of sculpture bust, male head. Idea of *Hermes* of Praxiteles."

No. 34 in a letter (13 February) said that shortly before 25 January he was revising the proofs of an article for a new dictionary, in which proof there was a short notice of the word Caduceus, and it was the wand or Caduceus that suggested *Hermes*. No. 92 in a letter (18 February) said that it was the visual idea of an antique piece of sculpture that caused him to get the *literary* idea of *Hermes* as being most in keeping. He is familiar with many of the antique torsos, having drawn them a lot thirty years ago.

(d) 15 February 1928.

No. 76 (8.53-9.0 p.m., Northwich, Cheshire) : " A gipsy woman."

No. 65 (8.30 p.m., Birmingham) : " Impression of Gipsy."

(e) 9 May 1928.

No. 52 (8.30-8.40 p.m., London, S.E.) : " Impressions connected with being at a great height ; probably on a mountain or in a plane."

No. 71 (8.55 p.m., Coventry) : " Champagne, country field view as from an aeroplane and sense of great height."

(f) 25 April 1928.

No. 20 (8.30-8.40 p.m., London, W. 13) : " *Thinking of Moses in the burning bush ; perhaps bush fire intended.*"

No. 14B (8.30-8.40 p.m., London, W. 8) : " A burning torch—which afterwards changed into something *writhing round a stick, perhaps remembrance of some Biblical picture.*" [See *Exodus*, iii, v.]

(g) 8 February 1928.

No. 32 (8.30-8.45, Southsea, Hants.) : " Impression of English Kings being mentioned, particularly Henry VIII."

No. 89 (8.50-9.0 p.m., London, N. 8): "Picture of King Henry VIII."

(h) 28 March 1928.

No. 20 (8.52 p.m., London, W. 13): "Very large *sunflower* with usual black centre."

No. 53 (8.50-9.0 p.m., London, N.W. 5): "Spidery thing like a *sunflower* of the single variety."

(i) 11 January 1928.

No. 14A (No time, Leamington Spa): "A straight road on a moor."

No. 28 (No time, Nuneaton): "Sensation of rushing along a perfectly straight road."

(j) 7 December 1927.

No. 57 (8.50-9.0 p.m., Chelsea, London): "Smallish house in country with two trees and a high brick wall."

No. 93 (8.50-9.0 p.m., London, S.W. 1): "Walled garden of an old red brick house."

(k) 9 November 1927.

No. 4 (Weston-super-Mare, 8.40 p.m.): "Felt restless. Could only think of a woman. *She seemed to be moving silently, dressed in white, somewhat ghastly.*"

No. 39 (8.43 p.m., Catterick, Yorks.): "Woman dressed in white flowing robe. Walking against a dark background."

A few other similar examples could be cited, but these will suffice. It will be noticed that the coincidence in time is not always even approximately exact. If we found the same pairs of percipients recording week after week, impressions of the degree of similitude represented by say, examples (e), (i), (j), (k), we might reasonably conclude that such a pair of percipients were subject to some common influence (*e.g.* reading the same weekly story magazine on the day of the experiment) or that they were in some sort of mental communication, either normal or supernormal. But while we find that two or three pairs of such coincidences occurred almost every week, they did not occur between the same pairs of percipients. But even if the same pair of percipients were found to record similar impressions at about the same time, we should find it almost impossible to prove that the cause of the coincidence was not some common influence which operated at about the same time on both percipients. In a civilised modern community thousands read the same newspapers evening after evening, listen to the same programme on the radio, take in the same magazine, etc. M. René Warcollier claims to have established the phenomenon of "mental

contagion" between percipients. In my opinion, he has not sufficiently taken into account the influences of common environment, common mental habits, and the universal power of suggestion of the modern newspaper and the modern advertisement. In Part II of my report, I shall return to this possibility of "mental contagion" among percipients, treating it from rather a different standpoint.

*The Dictionary control.* Noting the tendency of pairs of percipients to record similar impressions, such as "sunflower," "caterpillar," etc., I was curious to try an experiment with the dictionary, in which the percipients should be asked to pick out a concrete word at random. To this effect, I issued to percipients in February 1928 the following notice:

#### *Long-Distance Telepathy*

Each week after you have recorded your usual impressions, will you kindly carry out the following little experiment. Take an English Dictionary and, closing your eyes, open it at random, striking the page anywhere with a pencil. Note the *name* of an *object* nearest to the word on which your pencil falls. DO THIS AS MANY TIMES AS THE NUMBER OF IMPRESSIONS YOU HAVE RECORDED. Add these names at the end of your list of impressions each week, noting them thus:

*Control:* Squirrel, river, building, table.

Ignore abstract names such as "kindness," "intelligence," etc., choosing each time the nearest *concrete* object.

*On no account perform this test until the telepathy experiment is finished, i.e. until after 9 p.m.* S. G. SOAL.

It was a fortnight later (29 February) explained to percipients that an impression such as "white elephant" would require two control words instead of one, as it comprised two distinct ideas.

A list of the "control" words obtained from all the percipients was made each week, and the pairs of percipients who selected the same word or synonymous or closely associated words, were noted and the number of such coincidences counted each week. Using an Ogilvie and Annandale's English Dictionary it was found that if the dictionary is divided into three equal parts, about 50 per cent. of the words chosen each week were taken from the middle third (beginning of E to PO) of the book, while the remaining 50 per cent. were about equally divided between the other two-thirds of the dictionary. As the number of concrete names in any ordinary dictionary must considerably exceed the number of concrete words used in ordinary life by the average person, one might expect that chance coincidences between pairs of percipients during the actual telepathy experiment would be far more frequent than the coincidences obtained by means of the dictionary.

It was found as a matter of fact, that the coincidences due to the dictionary were usually far in excess of those noted during the actual experiment, but it must be remembered that the two experiments are not precisely comparable. Two percipients giving the word "white" in the dictionary control, would register a coincidence, whereas, in the actual experiment two percipients who obtained the respective impressions "white sea" and "white paper" could hardly be considered to score a coincidence. The Dictionary Control, therefore, is clearly of very limited application, but the following examples will show that simple "single word" coincidences such as "gypsy," "sunflower," occur quite as frequently in the case of the dictionary as in the actual experiment.

29 February 1928. Number of percipients, 34. Number of words chosen from dictionary, 153.

*Coincidences among control words.* No. 4, Romancer; no. 88, Romance. No. 53, Lord; no. 53A, God. No. 10, Polygraph; no. 57, Pantograph. No. 62, Pot; no. 33, Jar; no. 50, Pitcher. No. 52, Packer; no. 88, Unpacker. No. 45, Mediator; no. 19, Christ.

*Coincidences among percipients' impressions.* Nil.

7 March 1928. Number of percipients, 30. Number of words chosen from dictionary, 129.

*Coincidences among control words.* No. 14A, Enceinte; no. 60, Pregnancy. No. 31A, Jib; no. 50, Jib-boom. No. 33, Ulcer; no. 50, Carbuncle. No. 51, Wretch; no. 57, Wretch.

*Coincidences between percipients' impressions.* No. 64 (8.40), A Rainbow; no. 14A (8.35), Rainbow Colours.

*A remarkable success by the dictionary.* On one occasion (22 February, Expt. XIX) a curious "double" success was scored by the dictionary. We recall that on this particular evening, the objects of experiment were (A) Artificial Dragon Fly, (B) Toy Snake, and (C) Firework Lights in the darkness. There were 42 percipients, including seven of M. Warcollier's group, and the total number of control words was 170.

The results of the "Control" were: (A) No word applicable; (B) Adder (M. J. B.); (B) Serpent (M. de S.); (C) Lights (M. de S.). The two words "Serpent" and "Lights" followed each other in order. On this evening, the dictionary more than equalled the joint efforts of the 42 percipients, there being only one snake mentioned altogether (cp. Table I: 30=189, 65=601, 76=666).

*Impressions relating to the environment of the agents, but not to the actual objects of experiment.* It very occasionally happened that a percipient recorded an impression which, though not applicable to the subject of experiment, was yet related to something which occurred in the *séance*-room during the experiments. As I have explained in the Introduction to this paper, little importance can



be attached to such incidents, unless the coincidence shows an almost photographic accuracy of detail.

The following is the *best* incident of this kind, but I am not convinced by it. On 2 November 1927, percipient no. 20, noted (no exact time), "Something being lighted that would give a bad smell. A dazzling light. A bad smell again; perhaps an explosion. A hissing or gas-escaping sound." Mrs Fernald, one of the agents, wrote the following note two days after the experiment: "Between 7 and 8 p.m. J. H. F. [*i.e.* Mrs Fernald] twice let the gas escape while making coffee. The second time the tap was turned on for several minutes before the gas was discovered to be unlighted, and filling the room. We all exclaimed, 'there might have been an explosion.'"

During the same evening (2 November 1927) percipient no. 87 records, "A bunch of violets—a bowl of water." Mrs Fernald again adds the following note: "Miss Hood had put a bunch of violets in water in the bowl of the wash-hand stand, where they remained from 7-9 p.m. The wash-hand stand was just outside the door of the room in which we were sitting for the experiment." I can corroborate seeing the bunch of violets, which struck me as a fine bunch.

*Case of apparent anticipation of the experimenter's intentions.* The following curious coincidence is worthy of note.

On 5 October 1927, the first evening of the experiments, a toy rabbit was shown to the agents during the third interval (8.50-9.0 p.m.). On Tuesday, 4 October, I had bought some concentrated sulphuric acid and potassium chlorate from the chemist in Priddlewell, Essex. My intention was to make preparations for a little chemical experiment to startle the agents during the last ten minutes of the half-hour. On the morning of 5 October, I carried to town in my attaché case, a small bottle of sulphuric acid, a glass rod and a packet containing a mixture of sugar and potassium chlorate. I was intending to make a small white pyramid of this mixture and to place it on a tray in the *séance*-room. While the agents were watching, I would suddenly let fall a single drop of the concentrated acid on to the mixture from the end of the glass rod. There would have been a spluttering, crackling conflagration, rising almost to the ceiling, and acrid fumes of chlorine peroxide would fill the room as well as smoke. About midday on the day of the experiment, 5 October, however, I decided that the smoke might damage the ceiling, and that the project must be abandoned. I therefore purchased the toy rabbit, which ultimately formed the subject of experiment in the third interval.

No. 28 noted on 5 October (8.50-9.0 p.m.): "Something crackling or spluttering as water dropped on to acid. Irritating fumes. Idea

of Ammonia." In a letter dated 27 November no. 28 wrote: "I can safely say that I had been engaged in no experiments of a chemical nature for at least four years—that is, since I left school. As it happens I have absolutely nothing to do with chemistry either in my daily occupation or in my hobby—wireless.... The impression was the most sudden and unexpected of any I have as yet received. I can distinctly remember it occurring. Nothing was further from my thoughts at the commencement of the test." No. 28 continued with the experiments for eleven weeks, but obtained only one other success. He did not take part in the 1928-1929 series.

*List of Objects used in the Experiment, 1927-1928*<sup>1</sup>

I. 5 October 1927; 58 percipients took part; agents: Mr and Mrs Fernald, Miss P. Hood and S. G. S.

A. 8.30-8.40 p.m.: The agents looked at a large quantity of the scarlet berries and foliage of the wild guelder rose (*Viburnum opulus*). See Table I, no. 19.

B. 8.40-8.50 p.m.: A bright horseshoe. See Table I, nos. 65=661, 76=666.

C. 8.50-9.0 p.m.: A large toy rabbit with long ears, brilliant scarlet back and white woolly breast. See Table I, nos. 13, 23, 71=664.

II. 12 October 1927; 62 percipients; agents: same as in I.

A notice had been sent to the percipients to the effect that for all three objects the agents would attempt to transmit the name of a town or village.

A. 8.30-8.40 p.m.: Attempt to transmit the name Hornchurch, a village in Essex. I produced a tasselled horn and blew blasts on it, and then drew a church on a sheet of paper.<sup>2</sup> See Table I, no. 26=165.

B. 8.40-8.50 p.m.: Attempt to transmit the word Dartmouth. I used a small feather dart like a little arrow and sketched a mouth. See Table I, no. 54.

C. 8.50-9.0 p.m.: I showed in rapid succession the names

<sup>1</sup> Except when stated otherwise experiments I-XXII were conducted from 31 Tavistock Square, XXIII-XXXVI from 2 Adelaide Road.

<sup>2</sup> Although no percipient obtained an impression of a horn on 12 October when the word Hornchurch was visualised, it is curious that on the following week, 19 October (control) three percipients out of the total 57 obtained impressions of a horn. These impressions are as follows: no. 65 (8.30), "A horn and sounds and sights of hunting"; no. 61 (8.54), "A small horn... with fancy cord"; no. 50 (8.50), "A voice kept saying... Horne or Haurne." None of the three were able to account normally for their impressions.

Ramsgate, Brackenburg, Bath, Saltash, Maidstone, Barmouth, Barrow, Thornbury, Manningtree, Hatfield, each name being written on a strip of cardboard. Each name was exposed to view for about fifteen seconds and the agents were asked to visualise the objects suggested by the names but to make no attempt to hold the names in their minds longer than the fifteen seconds. See Table I, no. 52=650.

### III. 19 October 1927 (control experiment); 57 percipients.

This was the only control experiment in the present series. The usual notice had been sent out to the percipients. The agents, however, did not meet, but I was present at an S.P.R. *Conversazione* on this evening held at 31 Tavistock Square. At 9.30 p.m. I asked Miss Ina Jephson in the presence of Miss Newton to think of three objects and to label them A, B, C. The three objects chosen were: (A) An open book, (B) A globe of the world, (C) A red lacquered Box.

Fifty-seven percipients sent in records of their impressions. If we apply the percipients' impressions to the three objects suggested by Miss Jephson we have to note the following partial successes:

(A) No. 79 (8.50-9.0 p.m.): "An open book." Five other percipients mentioned books of various kinds.

(B) No. 53 (8.40) saw "a small globe, greeny blue, on ring or stand." No. 92 also mentioned a globe.

(C) No. 83 (No time) saw "a black and gold lacquered box." Eight other percipients mentioned or described boxes of various kinds, but unlacquered.

At 9.28 a.m. on the following morning Mr F. T. Cooper of East London College in the presence of Mr W. F. S. Churchill and myself at my request suggested three objects.

He thought of in order: (A) A waste-paper basket, drawing special attention to the wickerwork, (B) A red triangle (as a red motor sign), (C) A motor lamp.

Applying this control to the percipient's impressions obtained on the previous evening we may note the following successes:

(A) No. 28 (8.30 p.m.): "A needlework basket. Could smell the wickerwork."

(B) No. 45 (8.40-8.50): "Triangle."

(C) Nil.

I have recorded this experiment but it is of no real importance. Probably a sounder procedure would be to choose the three "control" objects at random from a dictionary. This was actually done two days later at the S.P.R. rooms. Miss Newton and I took an English dictionary and closing our eyes chose a word by opening the dictionary at random and striking a page with a pencil. The

nearest *concrete* word to the spot struck by the pencil point was chosen. This was repeated three times by Miss Newton and myself taking turns with the pencil. The three words chosen were: (A) Glove, (B) Lizard, (C) Barometer. Applied to the percipients' impressions for 19 October there would be no success with these three objects. Applied to the results sent in on 9 November there would have been one success, since no. 5 records (8.40-8.50) "Lizard or similar reptile."

IV. 26 October 1927; 51 percipients; agents: Mrs F., Miss H., Mr B., S. G. S.

The following notice had previously been sent to each percipient: "Please record all impressions between 8.30 and 9.0 p.m."

8.30-9.4 p.m.: Mr B. read aloud a story by Wilkie Collins entitled "A terribly strange Bed." It is a story of a young man who narrowly escapes death from suffocation by a mattress which, worked by a press in the room above, descends from the ceiling on to his bed. The scene is a Paris gaming house. The thrilling moments of the story were reached between 8.50 and 8.55 p.m. See Table I, nos. 3=604, 9, 10=610, 40=634, 53=652, 55.

V. 2 November 1927; 46 percipients; agents: Mr and Mrs F., Miss H., Mr O., S. G. S.

The following notice had previously been sent to each percipient: "Please record all impressions between 8.30 and 9 p.m."

8.30-9.10 p.m.: Mr O. read H. G. Wells's "The strange Story of Mr Evesham." This is a rather weird story in which a decrepit old man gains possession of the body of a young man and transfers his own memories to it. On p. 37 occur the words, "Gripping my hand with his long bony claw that was disengaged."<sup>1</sup> On p. 40, "I gripped his shrivelled claw." See Table I, nos. 7=607, 13, 50, 72, 92=686.

VI. 9 November 1927; 46 percipients.

As two of the agents had stated on 2 November that they would be prevented from coming to Tavistock Square on 9 November, I suggested that all should remain at home and think of the Moon and its associations in literature, between 8.30 and 9.0 p.m. During this time on 9 November, I was in a train and called to mind various quotations from Chesterton, Wilde, Lindsay Vachell, J. C. Squire, and others, in which the Moon was the object of simile. See Table I, no. 9.<sup>2</sup>

<sup>1</sup> See Table I, percipient no. 72, 2 November 1927.

<sup>2</sup> This percipient wrote: "The first and firmest impression was that the agents were either transmitting from their own homes [true, see above], or very indifferent or not up to the usual standard of concentration. For ten

VII. 16 November 1927; 35 percipients; agents: Miss N. and Mr O.

Percipients had been asked, "Please record all impressions between 8.30 and 9.0 p.m."

A. 8.30-8.40 p.m.: The agents looked at a photograph of the Venus de Milo. The agents spoke of the outline of the figure and were impressed by the effect of white statuary on a dark background. They also mentioned Paris. See Table I, no. 35.<sup>1</sup>

B. 8.40-8.50 p.m.: The agents tried to transmit the idea of a jungle, which they thought of as thick, hot, stifling, dark, silent till sunset when it awoke into life. Columns of trees meeting overhead, shutting out the light. A tiger, silent with glowing eyes. See Table I, no. 35.<sup>1</sup>

C. 8.50-9.0 p.m.: The figures 26 written in white chalk on a blackboard. *No success.*

VIII. 23 November 1927; 45 percipients; agents: Mrs F., Mr. O., and S. G. S.

A. 8.30-8.40 p.m.: A toy jumping frog, worked by an air bulb at the end of a tube let into the frog's back. The frog was painted a bright green, with yellow stripes, and black spots and brilliant golden eyes. I made it hop along the floor. *No success.*<sup>2</sup>

B. 8.40-8.50 p.m.: A small toy brown camel, with a blue nose. I mentioned that the camel was "Ship of the desert" and an ugly-tempered beast. See Table I, nos. 33=625, 89.

C. 8.50-9.15 p.m.: At about 7.30 in the evening, I had made some soap solution in a basin from a special preparation bought at Gamage's, for bubble blowing. With two small trumpet-shaped tubes of white wood I blew large soap bubbles from 8.50-9.15 p.m., letting the bubbles sink gently to the floor and bounce on the carpet. The company remarked on the beautiful iridescence of the bubbles and also on the reflections of the electric lights in them. See Table I, nos. 72, 87=676.

minutes I was unable to gather any definite impression at all. I felt that the object of concentration was no common or material object. If I gathered rightly it was *something stupendous, subtle, vast in extent*. Perhaps an invisible element. Something *astronomical*, universal, international or a phase of history. I was led step by step to Rome or Greece, the object being something pertaining to Art and Literature—too difficult or subtle for me to express."

<sup>1</sup> This is one of the very rare cases (almost the only one in the 1927-1928 series) in which a percipient obtains impressions which apply to two of the three objects shown to the agents.

<sup>2</sup> Curiously enough, a fortnight later, on 7 December, no. 23 (a medical man) records, "... toys including a jumping frog." No. 23 was unable to account normally for the impression, but suggested that about a month ago (his letter is dated 21 December) he might have seen a jumping frog in one of Gamage's Christmas catalogues. There is no mention of any kind of frog in the 1927-1928 series by any other sitter.

IX. 30 November 1927; 44 percipients; agents: Mrs F., Miss H., Mr O., and S. G. S.

A. 8.30-8.40 p.m.: An artificial rose-coloured starfish with frosted spines and a small picture of a woman's head at its gilded centre. *No success.*

B. 8.40-8.50 p.m.: A toy "skipping girl" with yellow metal hair and yellow feet, dressed in flowered muslin. When wound up with a small key the girl skipped rapidly on the floor with a rope, and turned slowly round, often falling over. *No success.*<sup>1</sup>

C. 8.50-8.55 p.m.: I read aloud Ralph Hodgson's poem "The Bull," which tells the story of an old bull, abandoned by the herd he led, and left to die in the forest. *No success.*

X. 7 December 1927; 46 percipients; agents: Mr and Mrs F., Miss H., Mr O., and S. G. S.

A. 8.30-8.37 p.m.: I connected up with a dry battery a small green shocking coil and let the agents hold hands and experience the sensation of the high frequency current. *No success.*

B. 8.37-8.52 p.m.: I read aloud to the company Martin Armstrong's poem "Miss Thompson goes shopping," from the red volume of Georgian poetry. *No success.*

C. At 8.52 p.m., having no other object to show, I asked the agents to suggest something. Miss H. suggested that we should each take off a boot and lay it on the hearth. This we did in imagination only. *No success.*

XI. 14 December 1927; 40 percipients; agents: Mrs F. and S. G. S.

A. 8.30-8.40 p.m.: A mechanical toy windmill with red sails on a green pillar. A little toy miller climbed the pillar while working his arms and legs, and on reaching the door of the mill, promptly descended with a sack of flour on his head. I made him climb up and down several times. *No success.*

B. 8.40-8.45 p.m.: Mrs F. and S. G. S. experienced the high frequency current in hands and wrists. *No success.*

C. 8.45-8.48 p.m.: I read aloud J. C. Squire's poem "Meditation in Lamplight," describing the varieties of horrible deaths a man may die. There are mentions of lions, sharks, strychnine, the rack, falling over cliff, etc., in the poem. *No success.*

XII. 21 December 1927; 35 percipients; agent: S. G. S.

A. 8.30-8.40 p.m.: I wore a conical Pierrot's cap with yellow

<sup>1</sup> Although no success was obtained by any percipient for object B on this date it is curious that a fortnight later, 14 December, no. 6 recorded the impression "A child skipping with a rope in brilliant light." No. 6 was unable to account normally for this impression.

fringe and dotted all over with red, white and blue diamond patterns. See Table I, nos. 75=665, 95.

B. 8.40-8.50 p.m. : A small toy railway signal complete with lever and real toy lamp. See Table I, no. 59=656.

C. 8.50-9.0 p.m. : I put out the lights in the room and smelled two square pieces of camphor for ten minutes.

Immediately after the experiment had concluded at 9 p.m., I wrote a description of the objects of transmission and placed it in an envelope which was addressed to Miss Newton and placed in the Society's letter box. *No success.*

XIII. 11 January, 1928 ; 43 percipients ; agents : Mr R., Mr S., and S. G. S.

A. 8.30-8.40 p.m. : I asked the agents to visualise from memory a mushroom. The pink gills, the satin skin, and the white stalk were recalled. Horse-mushrooms "as large as dinner plates" and young "button" mushrooms were mentioned. *No success.*

B. 8.40-8.50 p.m. : The agents were asked to visualise the figure of Father Time as an old bearded man, mowing down ranks of men with his scythe. The drawings of Father Time in Eno's Fruit Salts advertisements were also mentioned. See Table I, nos. 51=649A, 64=660.

C. 8.50-9.0 p.m. : I read aloud from *Georgian Poetry*, Edmund Blunden's poem, "The Giant Puffball," in which is told the story of an ambitious puffball that wanted to go on growing till it touched the sky, but which was uprooted and left to perish. *No success.*<sup>1</sup>

XIV. 18 January 1928 ; 40 percipients ; agents : Mr R., Mr S., Miss W., Miss N., and S. G. S.

A. 8.30-8.40 p.m. : I asked the agents to visualise the Bible story of David slaying the giant Goliath. I also read aloud Robert Graves's poem, "Goliath and David." *No success.*

B. 8.40-8.50 p.m. : Mr S. read aloud the Norwegian story of "The Smith who could not get into Hell." In this story, a smith made a certain pact with the Devil, who used to come to visit him in his smithy with the object of taking him back with him to Hell. The smith, however, outwits the Devil every time and gives him so much trouble that in the end the Devil bolts and bars Hell against the smith in case he should get in and create a disturbance. *No success.*

C. 8.50-9.0 p.m. I asked the agents to visualise a mason's trowel, a sketch of which was drawn roughly on a piece of paper. There was some conversation on the subject of bricklaying. *No success.*

<sup>1</sup> No. 61 (8.40½ p.m.) saw "A metal coffee pot which had a wooden handle and a white knob on the lid." This description very accurately fitted the coffee pot that was in the room during the experiment.

XV. 25 January 1928 ; 43 percipients ; agents : Mr R., Mr S., Miss N., and S. G. S.

A. 8.30-8.40 p.m. : I showed a model of an icosahedron in amber-coloured glass. The icosahedron, it will be remembered, is a regular solid figure, each of whose 20 faces is an equilateral triangle. It has 12 corners, the space at each corner being filled up with the angles of five equilateral triangles whose bases form a regular *pentagon*. There are 12 such *pentagons*, and I pointed out these 12 pentagons and 20 equilateral triangles as the predominant geometrical figures associated with the icosahedron. See Table I, nos. 34, 95.

B. 8.40-8.50 p.m. : I supplied each agent with a picture postcard photograph of the statue of a nude Amazon woman seated on horse-back with an axe in her hand. The statuary was white on a black background. The agents remarked that the horse's neck seemed too straight and long—too much like that of a giraffe. See Table I, no. 45A.

C. 8.50-9.0 p.m. : Mr S. read aloud the first three-quarters of Wilfrid Gibson's poem, "Bloodybush Edge," which depicts a chance meeting between a tramp and a local poacher on a wild and desolate moor in the borderland between England and Scotland. The poem contains a good deal about ghosts. See Table I, nos. 28, 37.

XVI. 1 February 1928 ; 33 percipients ; agents : Miss C., Col. H., Miss N., and S. G. S.

A. 8.26-8.40 p.m. : The lights were switched off, and at Miss N.'s suggestion we told creepy stories in turn. Miss N. began by imagining banshees and their wailings outside, trying to get in at the window. I described an imaginary experience of being shut up all night in a tiger's cage. I also described imaginary experiences of being lost in the catacombs. Col. H. described dreams of being pursued through passages by enemies. See Table I, nos. 5=605, 50, 53A, 92=686.

B, C. 8.40-9.0 p.m. : The agents watched Miss Newton make coffee in an apparatus like a glass retort, surmounted by a receptacle that contained the coffee. They watched the water boil above the flame of a small glass spirit lamp and rise up the tube into the coffee container. See Table I, no. 24.

XVII. 8 February 1928 ; 35 percipients ; agents : Mrs M. and S. G. S.

A. 8.30-8.40 p.m. : I exhibited a dark blue toy policeman with ginger hair and enormous white-gloved hand in the attitude of holding up the traffic. This large white right hand could be made to move up and down. Mrs M. and I pictured ourselves in a bus



waiting impatiently for the policeman's signal to release the traffic. See Table I, nos. 24, 31A=622, 55A.<sup>1</sup>

B. 8.40-8.50 p.m.: I showed a postcard of a golden eagle (Zoo series). We remarked that the eagle was the symbol of the West. We also mentioned the Roman eagle and the eagle in the heavens as well as the Austrian and German eagles. Allusion was made to the exploits of the eagle as a bird of prey. See Table I, no. 30=189.

C. 8.50-9.0 p.m.: I showed a postcard of two tortoises (Zoo series) with their necks protruding from their shells. The fable of the hare and tortoise was mentioned and remarks were made on the long lives of tortoises and on the tortoise as a useful garden pet. *No success.*

XVIII. 15 February 1928; 34 percipients; and in addition 5 members of M. Warcollier's group; agents: Mrs M. and S. G. S.

On this date the improved dictionary control first came into operation.

A. 8.30-8.40 p.m.: I showed a small "weather bird" whose body was made out of a fir cone. It was painted a slatey blue and had a whitish breast, black yellow-rimmed eyes and a small red top-knot. The two feet, which stood very close together were large and webbed. See Table I, M. J. B.

B. 8.40-8.50 p.m.: A small toy sign-post painted white and standing on a patch of green sward. Its two arms bore the directions Norwich to Yarmouth, and Norwich to Ipswich. We mentioned the "open road" and George Borrow's feats as a pedestrian. *No success.*

C. 8.50-9.0 p.m.: A toy acrobat who performed on a wire trapeze, describing somersaults and swinging his legs and body in the most realistic manner. The model was provided with a piece of elastic, which, when twisted up and released, provided the energy of motion. Some time before the experiment and earlier in the evening, I broke the elastic by winding it up too tight, and had to procure a fresh strip. See Table I, nos. 50, 52=650, 53=652.<sup>2</sup>

<sup>1</sup> In a letter (14 February 1928) no. 24 writes, "The hand I saw was rather small and delicately made and this made me think it might be a woman's hand." These additional details somewhat diminish the value of the coincidence. No. 55A wrote (17 February), "I felt the waiting was for some kind of race or competition." This information again diminishes the value of the coincidence. We may note that on three succeeding weeks, 7, 14, 21 March, there are solitary references to a moving hand.

<sup>2</sup> It is interesting to note that in the following week, 22 February, M. J. B. (Paris) notes, "A semicircle of metal turning very quickly, which appears as a sphere on account of its rapid movement. An impression of dancing in the air, lifting in turn my left leg and my right leg." On the same evening Mlle L. (Paris) records, "Looping the loop." Both the impressions of M. J. B. and Mlle L. would apply very well to the experiment of 15 February (C).

XIX. 22 February 1928; 35 percipients, and in addition 7 members of M. Warcollier's group; agents: Prof. and Mrs M., Mr and Mrs H., Miss B. J., S. G. S.

A. 8.30-8.40 p.m.: An artificial dragon fly poised on outspread wings on a copper wire above a bunch of imitation green leaves. We noted the brilliant rainbow colours and veins on the wings and also the long slender iridescent body. I mentioned that the dragon fly was first a caddis worm, living in a house of sticks. *No success.*

B. 8.40-8.50 p.m.: A toy snake made from pieces of wood jointed together with a tape running through them. The snake was painted green and black and yellow, and could be made to wriggle in a realistic manner by holding its tail and working its joints. It had a red open mouth, no fangs, and small white glass eyes. Sensations of horror were induced in one or two of the ladies present by the life-like movements of the snake. *See Table I, nos. 30=189, 65=661.*

C. 8.50-9.0 p.m.: I switched off the lights and applied a match to some firework sticks which, held in the hand, emitted showers of silver stars and sparks. *See Table I, no. 76=666.*

XX. 29 February 1928; 34 percipients, and in addition five members of M. Warcollier's group; agents: Prof. and Mrs M., Mrs H., and myself.

A notice had been sent out to the percipients reading as follows: "Please record all impressions between 8.30 and 9 p.m."

The agents met at 8.15 p.m. at 31 Tavistock Square, and then took a taxi to the Royalty Theatre, where we saw a play "The Crooked Billet," from seats in the upper circle. The play began at 8.45 p.m. and as soon as the curtain was up, a well-dressed man crept down some stairs into the common room of an inn, where a rough-looking man stood in his shirt-sleeves. The first man closed with the ruffian and knocked him down with a candlestick, but the fallen man whipped out a pistol and fired on the first man, who fell apparently dead. Another man entered the room from the door leading to the stairs and with the assistance of the assassin, carried away the shot man's body through the door. It turned out later that the man shot was a retired Scotland Yard official who was engaged in tracking a gang of criminals. I left the theatre at 9.15 p.m., but the other agents remained. The shot was fired at 8.46 p.m. *See Table I, nos. 4, 48A=647.*<sup>1</sup>

<sup>1</sup> The impression of 48A is an interesting revelation of the way in which a pseudo-success may result through the agents choosing a subject which happens to coincide with a mental hobby of some particular percipient. We find that no. 48A has a penchant for impressions relating to crime. Thus: 14 March, "Munsden Mystery quickly solved in an unusual manner"; 28 March, "Scotland Yard official overcoming an attack by a lunatic"; 2 May, "Attempt to burn down a large public building. Reds at work but prevented"; 16 May, "Mr Lloyd George having to struggle out of danger."

XXI. 7 March 1928; 30 percipients, including 1 member of M. Warcollier's group; agents: Prof. and Mrs M., Mr O., Mr and Mrs H., Miss B. J., and S. G. S.

A. 8.30-8.40 p.m.: A postcard of a zebra (Zoo series). *No success.*

B. 8.40-8.50 p.m.: A grey rubber elephant with tusks and a red cloth on its back. The elephant could be inflated by blowing down its trunk. Mr H. made a sketch of it. *See Table I, no. 63.*

C. 8.50-9.0 p.m.: A small toy clockwork car on three wheels. In the car was seated a Japanese lady holding a fan, while behind her stood a man with a large umbrella, on the top of which was painted a map of the arctic regions. When wound up the car described circles on the floor, the top of the sunshade or umbrella revolving at the same time. *No success.*

XXII. 14 March 1928; 32 percipients, and in addition 3 members of M. Warcollier's group; agents: Mrs M., Miss B. J., Mr O., and S. G. S.

A photo of the Warcollier group was shown for the first time to the agents.

A. 8.30-8.40 p.m.: A postcard of a peacock with spread tail. This was drawn by all the agents. *See Table I, nos. 26=165, 57, 52A, 71=664.*

B. 8.40-8.50 p.m.: Each agent smelled a ball of naphthaline. There was mention of naphtha soap and moths. *See Table I, no. 50.<sup>1</sup>*

C. 8.50-9.0 p.m.: I exhibited a small toy man with a clown's face. When wound up, the figure drew his bow across the strings of a large fiddle or 'cello, producing a phrase of six or seven notes. At each motion of the bow across the fiddle, the man jerked out his tongue and drew it in again. *No success.<sup>2</sup>*

<sup>1</sup> We must note that no. 50 obtained impressions of odours on ten other occasions and that none of these impressions had any relation to any odour arising in the *séance*-room. Moreover on the one other occasion (21 December 1927) when the odour of camphor was the object of experiment, no. 50 failed to get any impression of odour. The percipient did not take part on 20 June (Ammonia).

<sup>2</sup> Although no success was obtained with this object on this date a remarkable success was obtained in a Saturday experiment with the same object by M. R. Warcollier. I quote this success because although strictly outside the scope of the present report it is perhaps the most curious success in the whole of the experiments. The object described in C above was the subject of an experiment with the Warcollier group on 10 March 1928, 3.30-3.40 p.m. Full details of the object were posted to Miss Newton immediately after the conclusion of the concentration from my own home, the sole agent being myself, though other members of the family were present. There were only two percipients. M. Warcollier (Paris) records 3.30-3.40 p.m., 10 March: "Face with mobile grinning features, winking eyes, mouth open, putting out its tongue from moment to moment. Movement in jerks." The impression is correct in three important particulars: (1) The grinning features (suggesting a clown's face); (2) The putting out of the tongue; (3) The movement of the tongue by jerks.

XXIII. 21 March 1928; 28 percipients, and in addition five members of M. Warcollier's group; agents: Prof. and Mrs M., Mr O. (after 8.40 p.m.), and S. G. S.

A. 8.30-8.40 p.m.: A large coloured tortoiseshell butterfly poised on a wire with wings outspread above a group of artificial leaves. There were five spear-head leaves and three water-lily leaves, together with a wax yellow water-lily and bud. The wings of the butterfly had dark green tips, and the insect had two glinting gold eyes. *See Table I, Mme de Z.*

B. 8.40-8.50 p.m.: A comic cloth "Judy" with a rubber face and wearing black spectacles. By inserting one's thumb and little finger inside the hands of the figure she could be made to move her arms, nod her head and make grimacing faces. *See Table I, no. 60=657.*

C. 8.50-9.0 p.m.: A small toy porter who, when wound up, walked along the floor pushing before him a barrow on which was a yellow trunk. The porter wore a red cap. The natural walking motion of the legs was very striking. *No success.*

XXIV. 28 March 1928; 27 percipients, and in addition two members of M. Warcollier's group; agents: Prof. and Mrs M., Mr O., and S. G. S.

A. 8.30-8.40 p.m.: A small tennis racket with paper-covered handle to represent oak grain. A small ball, half orange, half green with a belt of red. Attention was concentrated on the meshwork of the tennis racket. *See Table I, Mme de Z.*

B. 8.40-8.50 p.m.: A toy man with a chicken's head and wide gaping tawny bill. The figure wore a yellow coat and blue trousers and carried a drum on which it played a tattoo with two green drum-sticks when wound up. On its back it carried a kind of fish-basket. The figure had broad black iron feet. *No success.*

C. 8.50-9.0 p.m.: A toy man with a red peaked hat, green coat and yellow trousers, driving a pair of dogs. When wound up the team ran across the floor on four wheels and the dogs' bodies plunged backwards and forwards in a realistic manner, the toy man holding the reins. *No success.*

XXV. 18 April 1928; 21 percipients; agents: Prof. and Mrs M.

The subjects of experiment were chosen on the spot by Prof. and Mrs M. The Warcollier group photograph was looked at by the agents.

A. 8.30-8.40 p.m.: A black and white kitten played with a cotton reel at the end of a string. *See Table I, no. 86=675.<sup>1</sup>*

<sup>1</sup> This example of a "double" success is somewhat discounted by the percipient's statement that on the morning of 18 April she had received a circular relating to the East.

B. 8.40-8.50 p.m. : A West Indian fan made from a palm leaf and about four feet high. *See* Table I, no. 86=675.<sup>1</sup>

C. 8.50-9.0 p.m. : An Indian temple bell which was rung at intervals. *No success.*

XXVI. 25 April 1928 ; 16 percipients ; agents : Prof. and Mrs M., and S. G. S.

A. 8.30-8.40 p.m. : I showed sprays of artificial oak-leaves coloured green, red, brown, yellow and splashed with autumn tints. *See* Table I, no. 32=624.

B. 8.40-8.50 p.m. : A small pair of toy scales, each scale pan being carried by three small chains. There was a drawer for weights. *See* Table I, no. 53=652.

C. 8.50-9.0 p.m. : I made a buff-coloured clockwork hen run across the floor. As it ran on wheels it flapped its wings, sometimes falling over. *No success.*

XXVII. 2 May 1928 ; 24 percipients ; agents : Prof. and Mrs M. and S. G. S.

A. 8.30-8.40 p.m. : I exhibited a grey plaster ass seated. Part of its neck consisted of a spiral spring so that the head could be made to twist and waggle. The ass showed the whites of its eyes and looked very ugly. Mrs M.'s cat smelled it and played with it. *See* Table I, no. 89.

B. 8.40-8.50 p.m. : A toy figure with only one leg, which was a wooden one. The figure had two heads, one a clown's head with chalky white face and red spots and red cap on it, the other a coffee-coloured negro's head. By pulling a string which passed up the wooden leg, the two heads could be made to alternate, one head being hidden under a blue cloth, while the other was in view. *See* Table I, no. 86=675.<sup>2</sup>

C. 8.50-9.0 p.m. : A toy brown bear with soft fur. The bear held a pink ball meshed in white worsted thread between its front paws. By means of an airball attached to a tube let into the bear's back, the creature could be made to hop along the table pushing the ball before it. Mrs M.'s cat got very excited, and having decided the animal was not to be feared, struck it repeatedly with her paws, trying to grab its fur in her teeth. A stick of incense was burned by Prof. M. *See* Table I, Mme de Z.

XXVIII. 9 May 1928 ; 16 percipients ; agents : Prof. and Mrs M., Mr O., and S. G. S.

A. 8.30-8.40 p.m. : A small Union Jack about 1' by 1' 6". Men-

<sup>1</sup> See footnote, p. 200.

<sup>2</sup> During the sitting (B) Mrs M. had compared the figure with two heads to a "Jack in the Box."

tion of American children having lessons on "the flag." *No success.*

B. 8.40-8.50 p.m. : A small windmill on a stick ; the sails were dyed feathers, yellow, blue, and scarlet. The windmill was fixed on a pin and was made to revolve by blowing edgeways on the feathers. *See Table I, no. 60=657.*

C. 8.50-9.0 p.m. : A rose-scarlet and cream-coloured paper Jockey's Cap, the flap being half red and half cream ; the divisions being separated by thin gilt borders. A gilt paper badge on the front showed a horse's head inside a horseshoe. There was a small cream button on the cap. *See Table I, no. 79=669.*

XXIX. 16 May 1928 ; 20 percipients ; agents : Prof. and Mrs M., Mr O., and S. G. S.

A. 8.30-8.40 p.m. : I wore a mortar board hat. Mention of academic costumes, colour of hoods, etc. *See Table I, no. 5=605.*

B. 8.40-8.50 p.m. : A small toy roundabout with three small aeroplane boats which swung outwards from the vertical when a little lever was pressed. The boats revolved at a great speed. There was a central red pillar and each boat was supported by a copper wire from a sky-blue revolving roof. *See Table I, Mme de Z.*

C. 8.50-9.0 p.m. : A toy contortionist with a Roman helmet and two chocolate-coloured clubs in his hands and dressed in blue and white muslin and yellow trousers. When wound up the man turned somersaults and wriggled his body on the floor. *See Table I, no. 31A=622.*

XXX. 23 May 1928 ; 36 percipients ; agents : Prof. and Mrs M., Mr O.

A. 8.30-8.40 p.m. : A peacock and small peahen embroidered on a large greyish square of silk. The peacock had a blue neck and in its tail were yellow eyes dotted with blue. *See Table I, nos. 48A=634, 92=686.*

B. 8.40-8.50 p.m. : A pack of Tarot cards. Agents played at gypsy fortune telling. Mr O. drew the King of Wands. *See Table I, nos. 3=604, 7, 59, 96.*

C. 8.50-9.0 p.m. : A seamless unpainted wooden boat from Japan (a cochin boat for running through the surf). *See Table I, no. 51=649A.*

XXXI. 30 May 1928 ; 21 percipients ; agents : Prof. and Mrs M., Mr O., and S. G. S.

A. 8.30-8.40 p.m. : A cardboard disc of  $5\frac{1}{2}$ " radius, divided into eight equal sectors by radii from the centre. The sectors were coloured red, white and green. *No success.*

B. 8.40-8.50 p.m. : A square piece of white cardboard 9" side

with a blue circle in the centre  $2\frac{1}{4}$ " radius. At each corner of the square a triangle was marked off and coloured red so that the white portion was a regular octagon with a blue circle in the centre. *No success.*

C. 8.50-9.0 p.m.: A circular disc of cardboard of  $5\frac{1}{2}$ " radius divided into concentric rings coloured violet, black and red starting from the innermost annulus; an orange spot was left in the centre. *See Table I, nos. 1b, Mme de Z.*

XXXII. 6 June 1928; 19 percipients; agents: Prof. and Mrs M., Mr O., and S. G. S.

A. 8.30-8.40 p.m.: A small kidney-shaped Ceylonese fan made of palm fibre. *See Table I, nos. 3=604, 5=605, 34c=628.*

B. 8.40-8.50 p.m.: A red wire model of a cone. *See Table I, Mme de Z.*

C. 8.50-9.0 p.m.: A black wooden cylinder with a square prism penetrating it, the axes of the two solids being at right angles. *No success.*

XXXIII. 13 June 1928; 20 percipients; agents: Prof. and Mrs M., and sister, Mr O., and S. G. S.

A. 8.30-8.40 p.m.: A rectangular strip of white cardboard coloured and notched at the end to represent the arm of a railway signal. *No success.*<sup>1</sup>

B. 8.40-8.50 p.m.: A postcard of the "Alpha" Novelty series showing two white mice with red pieces of coloured glass for eyes and white tails of spiral wire, which quivered when the card was held in the end. I showed also a grey-black rubber mouse. *No success.*

C. 8.50-9.0 p.m.: Each agent looked at a postcard of a group of statuary representing Laocoon and his two sons wrestling with the serpent. The statuary was white on a black background. It was remarked that the boys were disproportionately small, compared with the giant Laocoon, and that the serpent was a very involved and complicated creature. *No success.*

XXXIV. 20 June 1928; 19 percipients; agents: Prof. and Mrs M., Mr O., and S. G. S.

A. 8.30-8.40 p.m.: A postcard of the statue of Peter Pan in Kensington Gardens; mention that Peter Pan would never need to pass examinations as he did not grow up. *No success.*

B. 8.40-8.50 p.m.: The agents sniffed some strong ammonia solution poured into a saucer. *No success.*

C. 8.50-9.0 p.m.: A large yellow wax candle was lighted. The

<sup>1</sup> Percipient no. 13 performed the experiments this evening while under the influence of the drug mescal, but obtained no success.

stem of the candle had ornamental helical grooves cut in it. Mention of black interference phenomena in experiment with candle flame. *No success.*

XXXV. 27 June 1928; 12 percipients; agents: Prof. and Mrs M. The objects were chosen by Prof. and Mrs M. on the spur of the moment.

A. 8.30-8.40 p.m.: A bowl of roses. *See* Table I, no. 5=605.

B. 8.40-8.50 p.m.: A tiny black kitten placed in a basket. *See* Table I, No. 33=625.

C. 8.50-9.0 p.m.: A letter weight. Various objects were weighed, including the kitten. *No success.*

XXXVI. 4 July 1928; 11 percipients; agents: Prof. and Mrs M., Miss K. and S. G. S.

A. 8.30-8.40 p.m.: A small toy windmill with four red sails striped with black. *No success.*

B. 8.40-8.50 p.m.: A small mechanical pecking bird with green breast, black head and orange back. When wound up with a key the bird moved about and pecked. *No success.*

C. 8.50-9.0 p.m.: A wooden model of a Swiss chalet. Stones on the roof. Mention of the snow being eight feet deep in winter round the chalet. *See* Table I, no. 62.



TABLE I

To be read in conjunction with the references in List of Objects,  
1927-1928 (see above, pp. 190-204).

Identity Number of Per- cipient.	Number of Successes over Number of weeks' work.	Date and Order of Expt. (A, B, C).	Perceptants' impression and the period (A, B, C) in which it was noted.
1B	$\frac{2}{2}$	2 May (A)	(A) "An animal's head of a dirty greyish cream colour. Should say a ram with curled horns ringed round with alternate light and dark rings, deeply corrugated in fact."
		30 May (C)	(No time) "A large round thing very deep orange or flame colour."
3 = 604	$\frac{3}{18}$	26 Oct. (A)	"Possessed sensation of someone choking and gasping for breath."
		23 May (B)	8.50 (B) "Gipsy rang in my ears. Drawn to their column in daily paper. The 'Vagabond King.'"
		6 June (A)	8.41 (B) "Felt drawn to mystic east and felt beneficial effects of palm heat."
4	$\frac{1}{18}$	29 Feb.	8.45. "A sensation of something about to happen. I thought of a noise as an <i>explosion</i> ."
5 = 605	$\frac{4}{36}$	1 Feb. (A)	(No time) "Scene of man on rack in dungeon."
		16 May (A)	(post) "A large black clerical hat."
		6 June (A)	(A) "Black and blue colours merging into shape of fans."
		27 June (A)	(A) "A bunch of yellow flowers in large black jar."
7 = 607	$\frac{2}{9}$	2 Nov.	(A) "Someone reading a story."
		23 May (C)	(A) "Possibly the sail of a boat."
9	$\frac{2}{12}$	26 Oct.	(No time) "Emotion of impending tragedy as of something terrible going to happen."
		9 Nov.	Impression that agents were transmitting from their own house— Impression of Astronomy—of Art and literature. ( <i>See p. 192 above, footnote.</i> )
10 = 610	$\frac{1}{18}$	26 Oct.	(A) General idea of sudden terror.
13	$\frac{2}{12}$	5 Oct. (C)	(B, C) "Amusement. Something connected with a <i>rabbit</i> . Possibly a rabbit glove."

(*See p. 203  
above, footnote.*)

TABLE I (*continued*)

Identity Number of Per- cipient.	Number of Successes over Number of weeks' work.	Date and Order of Expt. (A, B, C).	Perceptant's impression and the period (A, B, C) in which it was noted.
		2 Nov.	(B) "Continuous droning noise as of reading aloud."
19	$\frac{1}{2}$	5 Oct. (A)	(A) "Large bouquet of foliage."
23	$\frac{1}{11}$	5 Oct. (C)	(C) "A rabbit sitting on the grass by its burrow."
24	$\frac{2}{16}$	1 Feb. (B, C)	(A) "A spirit lamp with small flicker- ing flame." [NN]
		8 Feb. (A)	(A) "A right hand that keeps moving backwards and forwards and from side to side." ( <i>See page 197 above, footnote.</i> )
26 = 165		12 Oct. (A)	(A) "A church on a hill."
	$\frac{2}{25}$	14 Mar. (A)	(B, C) "A bird. <i>Peacock</i> ."
28	$\frac{1}{11}$	25 Jan. (C)	(C) Suggestion of a " <i>Ghost</i> ."
30 = 189	$\frac{2}{11}$	8 Feb. (B)	(C) Little grotesque figure with <i>long beak</i> ."
		22 Feb. (B)	(No time) "Sense of Fear."
31A = 622	$\frac{2}{13}$	8 Feb. (A)	(C) "Someone has turned quickly to face me and is holding up one hand with thumb out of sight."
		16 May (C)	(A) "See people sitting round a table watching with amusement a <i>man</i> winding up something."
32 = 624	$\frac{1}{34}$	25 April (A)	(B) "Artificial flowers placed in centre of room."
33 = 625	$\frac{2}{26}$	23 Nov. (B)	(C) "A sandy desert."
		27 June (B)	(C) "Teddy Bear—lying down as a <i>cat</i> ."
34	$\frac{1}{8}$	25 Jan. (A)	(No time) "A golden ball with projec- tions." Also a drawing of a star-shaped figure with five tri- angles and regular pentagon in centre with circle inscribed.
34C = 628	$\frac{1}{8}$	6 June (A)	(B) "A large fern or <i>young palms</i> ."
35	$\frac{2}{4}$	16 Nov. (A)	(A) "A slight impression of a <i>bust</i> of a man wearing a laurel crown in the Roman fashion. I shut my eyes and the <i>statue</i> was gone.— Then came a jumbled impression of savages but I had been read- ing <i>Beebe's Pleasant Jungles</i> ." ( <i>See p. 193 above, footnote.</i> )
		16 Nov. (B)	

TABLE I (continued)

Identity Number of Percipient.	Number of Successes over Number of weeks' work.	Date and Order of Expt. (A, B, C).	Percipients' impression and the period (A, B, C) in which it was noted.
37	$\frac{1}{7}$	25 Jan. (C)	(No time) "No impression except <i>moors</i> and by association <i>Othello</i> . But it was <i>Moorland</i> I got and not the <i>Othello</i> sort. It is a <i>Wuthering Heights</i> sort of night here."
40 = 634	$\frac{1}{12}$	26 Oct.	(A) "Idea of sudden terror."
45A	$\frac{1}{10}$	25 Jan. (B)	(B) "A beautiful horse galloping."
48A = 647		29 Feb.	(B) "Scotland Yard officers great discovery near Cheapside." (See p. 198 above, footnote.)
	$\frac{2}{12}$	23 May (A)	(A) "A gentleman seemed to be holding up what looked like a peacock."
50	$\frac{4}{24}$	1 Feb. (A)	(B) "A strong suggestion of threatened danger."
			(C) "Revolver; fear amounting to terror grips me."
		15 Feb. (C)	(C) "Something in the hand of a man being hurled round. Elastic or some object made of rubber."
		2 Nov.	(A) "Thought of a book being read."
		14 Mar. (B)	(B) "A very good impression of soap bringing with it most peculiar chemical smells." (See p. 199 above, footnote.)
51 = 649A	$\frac{2}{12}$	11 Jan. (B)	(A) "The words Time and Tide."
		23 May (C)	(A) "A wooden Norwegian Boat."
52 = 650	$\frac{2}{21}$	12 Oct. (C)	(C) Word "Nutfield."
		15 Feb. (C)	(B) "Impressions connected with a <i>Circus</i> ."
52A	$\frac{1}{19}$	14 Mar. (A)	8.40-8.50 (B) "Impression of a bird beautifully coloured and with rich plumage."
53 = 652	$\frac{3}{20}$	26 Oct.	(No time) "Someone (a man ?) reading aloud."
		15 Feb. (C)	(B) "The word Rubber." Drawing like piece of twisted elastic.
		25 April (B)	(B) "Balances swinging."
53A	$\frac{1}{9}$	1 Feb. (A)	(B) "Several people being entertained by man telling an amusing story."

TABLE I (continued)

Identity Number of Per- cipient.	Number of Successes over Number of weeks' work.	Date and Order of Expt. (A, B, C).	Percipient's impression and the period (A, B, C) in which it was noted.
54	$\frac{1}{11}$	12 Oct. (B)	(B) "An arrow."
55	$\frac{1}{7}$	26 Oct.	(No time) "I heard a slight noise of machinery moving over me high up."
55A	$\frac{1}{10}$	8 Feb. (A)	(A) "A sense of <i>waiting, expectation</i> and then <i>release</i> at a <i>given signal</i> —Sense of <i>smartness</i> Red Coat?— <i>Black busby</i> ." (See p. 197 above, footnote.)
57	$\frac{1}{30}$	14 Mar. (A)	(C) "Something like a <i>peacock's</i> tail or a bouquet of coloured rock-ets."
59 = 656	$\frac{2}{28}$	21 Dec. (B)	(No time) "A <i>warning</i> : Look out."
		23 May (B)	(A) Mention of a steamer.
60 = 657	$\frac{2}{24}$	21 Mar. (B)	8.50 (B) "Grotesque female figure similar to those in a pantomime or the carnival at Nice."
		9 May (B)	(C) "A moorland road—In far distance a hazy mass resembling a <i>wind-mill</i> ."
62	$\frac{1}{18}$	4 July (C)	(C) "Steep incline; snow or sand."
63	$\frac{1}{18}$	7 Mar. (B)	(A) "A vague visual impression of an <i>elephant</i> ."
64 = 660	$\frac{1}{18}$	11 Jan. (B)	(B) "Someone tapping or beating <i>time</i> ."
65 = 661	$\frac{2}{21}$	5 Oct. (B)	(B, C) "A galloping horse."
		22 Feb. (B)	(B) "A <i>serpent</i> and feeling of fear."
71 = 664	$\frac{2}{14}$	5 Oct. (C)	(C) "A <i>rabbit</i> brownish in colour and appearance—came quite close."
		14 Mar. (A)	8.40 (B) Impression of a bird with gay colours and grotesque appearance.
72 <sup>1</sup>	$\frac{2}{4}$	2 Nov.	(C) "Person seated reaching out with <i>claw-like</i> hands and drawing something towards him."

<sup>1</sup> The two impressions (2, 23 November) obtained by this percipient (Barnsley, Yorks) are perhaps the most remarkable of the whole of the present series. With regard to 23 November (C) the description is extremely suggestive of my gestures in blowing the bubbles (cf. p. 193). The pipe was certainly "held like a pen" and my head was constantly being turned to the right in order to disengage the bubble. The soap solution used, however, was in a white basin and not a coloured saucer. The impression of the percipient clearly preceded the actual experiment by several minutes. I had, however, rehearsed the performance at 7.30 in the evening when alone in the Tavistock Square *séance*-room with locked doors (the room has no windows). No. 72, perhaps the most successful of all the percipients, did only four weeks' work and did not take part in the 1928-1929 series.

TABLE I (continued)

Identity Number of Percipient.	Number of Successes over Number of weeks' work.	Date and Order of Expt. (A, B, C).	Percipient's impression and the period (A, B, C) in which it was noted.
	$\frac{2}{4}$	23 Nov. (C)	(A) "A coloured saucer with liquid in it and a man standing by with pipe in right hand, held like a pen; bowl nearest body and he keeps turning his head to the right as if he were talking about the saucer and its contents."
75 = 665	$\frac{1}{10}$	21 Dec. (A)	(B) "A dunce's cap. A fool's cap. Figure of a jester."
76 = 666	$\frac{2}{20}$	5 Oct. (B)	(C) " <i>A horseshoe.</i> " [N, N]
79 = 699	$\frac{1}{15}$	22 Feb. (C)	(C) "Silver star, black ground."
86 = 675	$\frac{3}{25}$	9 May (C)	(C) "Horses running in a race."
		18 April (A)	(C) "Scenes of cats' faces."
		(B)	(C) "Either a talk or thoughts of an Eastern scene." ( <i>See p. 200 above, footnote.</i> ) [N]
		2 May (B)	(B) "Something amusing with red in it; keeps coming and going like a Jack in the Box." ( <i>See p. 201 above, footnote.</i> )
87 = 676	$\frac{1}{22}$	23 Nov. (C)	(C) "Glass balls coloured various colours."
89	$\frac{1}{11}$	23 Nov. (B)	(A) "Zoo, giraffe, leopard, etc., as though taken from a book of Zoology."
92 = 686	$\frac{3}{25}$	2 Nov.	(C) "Someone reading from a book."
		1 Feb. (A)	(A) "A skull; ideas macabrous."
			(B) "Some story being read in such subject matter to give the creeps."
		23 May (A)	(B) "Fabrics or cloths held up at the corners to display colours, carpets perhaps oriental silks."
95	$\frac{2}{15}$	21 Dec. (A)	(A) Drawing of diamond patterns resembling that on the dunce cap shown. Also drawing of two cones vertex to vertex.

TABLE I (*continued*)

Identity Number of Per- cipient.	Number of Successes over Number of weeks' work.	Date and Order of Expt. (A, B, C).	Percipient's impression and the period (A, B, C) in which it was noted.
		25 Jan. (A)	(A) A drawing showing two triangles apparently equilateral, one inside the other (sides parallel).
96	$\frac{1}{9}$	23 May (B)	(C) "Object in water gliding or floating as a boat or gondola."
98A = 694	$\frac{1}{10}$	25 Jan. (A)	(A) "An <i>equilateral triangle</i> , very distinct. A right angled triangle. An irregular <i>pentagon</i> ." <sup>1</sup>
M. J. B.	$\frac{1}{8}$	15 Feb. (A)	(A) "A white bird with a red eye."
Mme de Z. <sup>2</sup>	$\frac{5}{12}$	21 Mar. (A)	(A) A drawing of a pair of leaves like water-lily leaves and resembling those of the ornament.
		28 Mar. (A)	(B) A drawing of a circle covered with a network of lines somewhat resembling a tennis racket. The words "Une gallette."
		2 May (C)	(C) "Un ours assis vu de 3 quarts-stylisé à la manière héraldique."
		16 May (B)	(B) "Une personne qui se balance. Un jouet."
		30 May (C)	(B) "Cercles concentriques horizontals comme un chapeau plat."

<sup>1</sup> In a letter dated 14 February this percipient writes: "The triangle came—the bounding line that is—in a lightish golden yellow on a dark background. So did the other things—I cannot account normally for the emergency of the impression. Years ago I taught elementary mathematics." It will be seen (p. 196, above) that the icosahedron shown was of *golden glass*. This percipient continued in the 1928-1929 series, but achieved no outstanding success, his score being  $18/440 = 4.1$  per cent.

<sup>2</sup> This percipient actually obtained the greatest number of successes (5) in the 1927-1928 series. Moreover it should be noted that whereas Mme de Z. did only 12 weeks' work the two English percipients who secured four successes each did 24 and 30 weeks respectively. Mme de Z. recorded an average of 2.6 visualisations per 10-minute interval, which is not at all exceptionally high.

## PART II

### STATISTICAL EXPERIMENTS 1928-1929

By the end of July 1928 it became clear to me that little definite progress was to be made on the preceding lines of experiment. While there was a small residuum of material that was suggestive of supernormality, the coincidences obtained were not sufficiently striking or detailed to compel belief in the operation of a supernormal faculty. One of the most disappointing features of the work was the failure of the percipients to repeat their successes with any degree of frequency or regularity.

I determined, therefore, to work each week with a much larger number of percipients than had been hitherto possible and to use material that would be adapted to statistical computation. To this end I approached the Council, and it was arranged that Prof. Julian Huxley should, on 19 September 1928, give a talk on the wireless, based on some notes furnished by me. Prof. Huxley gave some account of the results of the 1927-1928 experiments and asked for volunteers who would be willing to devote half an hour each Wednesday evening for at least four months. He appealed specially to all who had had personal experience of telepathy or clairvoyance and to those who possessed the faculty of automatic writing or planchette writing, and he invited them to communicate with the Society and relate their experiences. Any blind people willing to co-operate were also asked to write.

As a result of this appeal by Prof. Huxley, upwards of 600 letters were received from interested persons; 470 of the writers actually took part in the new series of experiments. In addition 55 of the 1927-1928 percipients (including five psychics) continued with the second series. During the succeeding six months the total number of percipients was increased by the addition of friends, etc., to 579 (including six further psychics). No such body of percipients has ever in the history of psychical research taken part in experiments extending over such a prolonged period as six months, and the best thanks of the Society is due to all these persons who gave of their time and service so willingly.

*Geographical distribution of the percipients.* The 579 percipients were distributed as follows: 143 lived in the London Postal Area; 66 in the Home Counties of Kent, Essex, Surrey, Herts., and

Middlesex ; 305 in the remainder of England ; 21 in Wales ; 22 in Scotland ; 15 in Ireland ; two in the Channel Islands ; and one each in India, New Zealand, Holland, France (not in M. Warcollier's group) and California.

*Analysis of letters from prospective percipients.* Of the 470 letters received from persons who afterwards took part in the experiment, 353 of the writers claimed to have had psychic experiences<sup>1</sup> of one kind or another, through the exercise of their own supposed supernormal faculties. The remaining 117 letters make no mention of personal experiences or faculties and of these 117 there are 30 that definitely disclaim the possession of any supernormal experiences or psychic powers.

Of the 364 psychics 59 stated that at one period or other of their lives they had been able to produce automatic writing or to obtain messages by means of a planchette or ouija or by "glass and letters" (19 of these 59 automatists apparently used some form of automatic writing to divine the objects shown in the present experiment) ; 138 of them claimed to have had successful experiences in telepathy of either the spontaneous or experimental variety, some acting as agents and others as percipients ; 53 claimed to have had premonitions of future events or premonitory dreams which were realised ; four claimed to have seen visions in a crystal ; two claimed to be dowsers ; one claimed the power of making her astral form visible at a distance ; four claimed to be influenced by "spirit" controls and to be spirit mediums ; 16 of the 470 percipients were totally blind and two others nearly blind, and of these blind percipients six claimed to have had psychic experiences.

It is noteworthy that none of the well-known professional mediums could be induced to take part in the experiment. I personally wrote to four of these who were known to me. Two urged lack of time, one of them stating that "her form of telepathy was telepathy from the spirit world and that she could not hope to succeed with mine." The two other mediums did not answer my letters.

To some extent the above psychic classes overlap. That is to say, certain of the telepathic class were also automatic writers, and so on.

Many of the experiences related by the 364 psychics were extremely curious, and while there is no reason for doubting the authenticity of the majority of them, I am convinced that none of them would repay a close investigation with a view to publication. Adequate records of strange happenings seem seldom to have been made at the time of their occurrence, and corroborative evidence of any value would have been extremely difficult to obtain.

<sup>1</sup> Many of these experiences would appear to have been very slight. The most interesting are to be found in the groups of "telepathists" and "automatists."



The following extracts from letters written by percipients show a considerable variety in the reasons they give for believing themselves to have telepathic powers :

"During my army service when I have been asleep on guard I could always rely on being awakened by a voice calling my name whenever any officer or N.C.O. was visiting my post."

"I find people can't lie to me. I read their thoughts and they bungle the lie."

"Sir, having proved telepathy to be positive in a small room and having found that my dog can read my thoughts I would be favoured, etc."

"Astrologically I should be sensitive to any such experiments. I was born with the sun posited in the fourth house under the sign Pisces ; Scorpio was in the ascendant ; the moon was posited in the 9th house under the sign Cancer."

"Between my husband and me there was an intense communication without words. During the last months of his life I was afraid to think when near him."

"I possess some psychic powers and a pair of eyes that flash fire when they please."

"I never dream silly dreams or have nightmares but I dream whole histories at long intervals."

*General instructions to percipients.* It was found necessary to change the time of the weekly transmission to suit the majority of the percipients. The half-hour was now fixed for Wednesday evening 10.0 p.m.-10.30 p.m., and it was arranged that the sittings should be regularly held at 2 Adelaide Road, the home of Prof. and Mrs Mackenzie. Except for the necessary changes affecting time and place and a suggestion with regard to the use of a photograph of the agents, the *General Instructions* sent out to prospective percipients were practically identical with the 1927-1928 instructions (see p. 171, above).

*The agents.* The agents who regularly carried out the transmission from 2 Adelaide Road, N.W., were Prof. and Mrs Mackenzie, Mr Odell and S. G. S. Each intending percipient was supplied with a copy of a photograph of the agents taken at a studio in Camden Town. (Owing to the pooriness of the lighting facilities at Adelaide Road, it was found impracticable to secure a good photograph of the group standing in the actual room where the meetings were to be held.) The percipients were instructed to look at this photograph for a few minutes before 10.0 p.m., and then to lay it aside. Mrs Hughes appears in the group, as it was hoped that she would have been able to assist at the meetings, but unhappily a serious illness intervened and Mrs Hughes was unable to attend a single sitting.

The percipients were left unenlightened on the absence of Mrs Hughes, and it is a curious fact that among their impressions there are more statements referring to Mrs Hughes than to any other agent of the group.

*The recording of results.* Owing to the large number of percipients who sent in their impressions each week it was impossible for me to open all the letters personally or to undertake the large amount of clerical work involved in copying the contents of the letters on to the record cards, the preparation of notices, and the answering of correspondence. Miss Helen Carruthers, a member of the Society, was therefore engaged to do this work, and I should like to pay here a tribute to the efficiency and business-like manner in which she carried out her considerable task. Not only did Miss Carruthers copy every letter on to its appropriate card, supervise the sending out of notices, address letters of enquiry to large numbers of individuals, but she also made a tolerably complete and detailed classification of the impressions of the percipients relating to the 27 material objects shown to the agents. This was an extensive and most useful piece of work by which the percipients' guesses were exhaustively grouped under numerous heads each week.

The general method of procedure was as follows. By Friday morning of each week the great bulk of the postcards and letters had reached the S.P.R. office. A large card bearing his identity number, name and address, was allotted to each of the 579 percipients. Miss Carruthers opened each letter and copied the contents on to the appropriate card, inserting the date and the times of each impression. A separate record was kept of the "Control Words." I spent the afternoons of Thursday, Friday and Wednesday reading through the cards and classifying on separate cards the percipients' impressions under suitable headings, this classification having reference not only to the objects of experiment of the current week but also to those of all the preceding weeks. After the completion of the experiment in April 1929 many weeks were spent by Miss Carruthers in making independent detailed lists connected with each object of experiment. In the year 1929-1930 the whole of the 579 record cards and supplementary cards were gone through personally by myself and entirely new lists compiled which were compared with and checked by the original lists made by Miss Carruthers. These supplemented and corrected lists were used as a basis for the construction of the Object Table XXXIII. Very considerable labour and hundreds of hours have been expended on these Tables alone, and it is hoped and believed that they are now practically free from error.<sup>1</sup>

<sup>1</sup> Table XXXIII is printed at the end of the report (pp. 303-349, below).

*General scheme of experiments.* The general plan of the experiments is set out in the chart in which are given the numbers of percipients and of additional agents, and a brief description of each object shown to the agents. A more detailed description of each evening's meeting is contained in the lists at pp. 280-302, below. In these lists are to be found also the exact forms of the notices sent out each week to the percipients and to the additional agents.

It will be seen from the chart that the experiments may be classified as follows :

A. Twenty-seven attempts to transmit impressions of material objects. In two of these, 7 November (i) and 28 November (i), the main design was to attempt to convey impressions of the colours *Red* and *Yellow* respectively.

B. Six attempts to convey impressions of simple geometrical figures, together with five control experiments designed to provide a statistical standard of comparison. In the five control experiments no actual attempt was made to transmit any geometrical figure, but the percipients received the same notice as in the six *bona fide* attempts at transmission. This notice invariably read : "The third object will be a geometrical sketch. Please draw your impressions."

C. Eight attempts to convey impressions of a three figure number, together with six control experiments serving as statistical standards of comparison. In each of these 14 experiments the following notice was issued to percipients : "The [first, etc.] object will be a number of three figures. Please record only your strongest impression."

D. Four attempts to convey impressions of a capital letter of the alphabet, together with five control experiments. In each of these nine experiments the notice issued to percipients was the following : "The [first, etc.] object will be a capital letter of the alphabet."

E. Five attempts to convey impressions of a playing card together with three control experiments. In each of these eight experiments the notice to percipients read : "The [first, etc.] object will be a playing card."

In addition to these 69 experiments there was also an attempt on 6 March (i) to transmit the first verse of William Blake's poem "Tiger."

It will be seen from the chart that three distinct transmissions were attempted on each evening. There is an exception on 20 March when four transmissions were attempted. The period devoted to each object, etc., was therefore as a rule 10 minutes, and throughout the following work the three intervals 10.0-10.10 p.m., 10.10-10.20 p.m., and 10.20-10.30 p.m., are referred to in order as I, II, and III, instead of A, B, C, as in the 1927-1928 experiments.

## THE CHART

GENERAL SCHEME OF EXPERIMENTS, OCTOBER 1928-MARCH 1929.

Date.	Total Number of Per- cipients.	Addi- tional Agents.	I. 10.0-10.10 p.m.	II. 10.10-10.20 p.m.	III. 10.20-10.30 p.m.
10 Oct.	414	<i>Nil</i>	Red poppies (artificial). 414	Toy tomahawk. 414	Egyptian head with tape measure from mouth. 414
17 Oct.	386	<i>Nil</i>	Yacht with white sails and native in prow. 386	Firework bomb and ig- nited paper balloon. 386	Silver firework stars in darkness. 386
24 Oct.	385	<i>Nil</i>	Toy mandolin. 385	Cardboard nose and pincenez clips. 385	Maltese cross. 385 - 60 = 325
31 Oct.	355	<i>Nil</i>	Yellow duck in top hat and spectacles. 355	Blue bell-shaped paper ornament. 355	Three sets of two con- centric circles in tri- angular formation. 355 - 59 = 296
7 Nov.	327	<i>Nil</i>	Red dunce cap and rolls of red paper. 327	Toy blacksmith with hammer and anvil. 327	Control (geometrical). 327 - 66 = 261
14 Nov.	311	<i>Nil</i>	White artificial mistletoe berries and green leaves. 311	Chocolate tin bear with pole (mechanical). 311	Pentagon (regular). 311 - 95 = 216
21 Nov.	342	<i>Nil</i>	Toy Scissors Grinder and grindstone (mechanical). 342	Number 424. 342 - 6 = 336	Equilateral triangle. 342 - 84 = 258

THE CHART (continued)

Date.	Total Number of Per- cipients.	Addi- tional Agents.	I. 10.0-10.10 p.m.	II. 10.10-10.20 p.m.	III. 10.20-10.30 p.m.	Object Concentrated on by the Additional Agents.	Period of Concentration for Additional Agents.
28 Nov.	313	Nil	Three yellow chrysanthemums and sheets of yellow paper. 313	Number 444. 313 - 30 = 283	Three concentric circles. 313 - 98 = 215		
5 Dec.	356	23	Postcard photo of kangaroo. 333	Number 888. 356 - 94 = 262	Letter F. 356 - 8 = 348	I.	10.0- 10.10 p.m.
12 Dec.	301	23	Postcard photo of alligator. 278	Letter S. 301 - 14 = 287	Control (geometrical). 301 - 89 = 212	I.	10.0- 10.10 p.m.
19 Dec.	288	20	Toy organ-grinder and dancing monkey. 288	Postcard photo of dog, pipe in mouth and cap on head. 268	Control (geometrical). 288 - 50 = 238	II.	10.10- 10.20 p.m.
9 Jan.	298	29	Red apple. 269	Number 581. 269 - 33 = 236	Control (geometrical). 298 - 55 = 243	II.	10.0- 10.5 p.m.
16 Jan.	284	23	Chinese cup and saucer. 261	Number 555. 261 - 26 = 235	Black equilateral triangle within circle. 284 - 50 = 234	II.	10.0- 10.5 p.m.
23 Jan.	275	25	Postcard showing red rose and green leaves. 250	Number 491. 275 - 40 = 235	2 of Diamonds. 275 - 1 = 274	I.	10.0- 10.5 p.m.
30 Jan.	294	29	Brown furry bear pushing pink ball. 294	Number 222. 265 - 34 = 231	Letter H. 294 - 7 = 287	II.	10.10- 10.15 p.m.
6 Feb.	277	25	4 of Spades. 252 - 38 = 214	Number 777. 277 - 19 = 258	Control (geometrical). 277 - 70 = 207	I.	10.0- 10.5 p.m.

THE CHART (*continued*)

Date.	Total Number of Per- cipients.	Addi- tional Agents.	I. 10.0-10.10 p.m.	II. 10.10-10.20 p.m.	III. 10.20-10.30 p.m.		
			Letter W.	Control (number).	Calendar with picture of Alsatian dog with lolling tongue. 276	I.	10.0- 10.5 p.m.
13 Feb.	276	28	248 - 13 = 235	276 - 26 = 250			
			6 of Clubs.	Control (number).	Control (letter).	I.	10.0- 10.10 p.m.
20 Feb.	284	29	255 - 21 = 234	284 - 52 = 232	284 - 7 = 277		
			5 of Hearts.	Control (number).	Control (letter).	I.	10.0- 10.10 p.m.
27 Feb.	266	27	239 - 44 = 195	266 - 38 = 228	266 - 14 = 252		
			First verse of Blake's "Tiger."	Control (number).	Control (playing card).	I.	10.0- 10.5 p.m.
6 Mar.	253	23	230	253 - 18 = 235	253		
			Yellow plaster duck and mechanical pecking bird.	Control (playing card).	Control (letter).	Nil	Nil
13 Mar.	252	Nil	252	252	252 - 7 = 245		
			Picture of bird on skull.	Control (playing card).	Control (letter).	I.	10.0- 10.10 p.m.
20 Mar.	247	43	204	247	10.20- 10.25 Control (number). 10.25- 10.30		
			3 of Hearts.	Control (number).	Control (letter).	I.	10.0- 10.10 p.m.
27 Mar.	262	68	194 - 28 = 166	262 - 31 = 231	(10.20-10.25) 262 - 6 = 256		

Each percipient was allotted an identity number, and the 55 percipients who had previously taken part in the 1927-1928 tests were given numbers all lying between 600 and 700, to distinguish them from the newcomers.

A reference such as 19 December (ii) 355 "A butterfly on a skull," must be read to mean that percipient no. 355 obtained the above impression on 19 December 1928 in the *second* interval, *i.e.* between 10.10 p.m. and 10.20 p.m. In the cases where a percipient recorded his impression at the exact end of an interval, *e.g.* at 10.10 or 10.20 p.m., the interval to which the impression was to be considered to belong was settled by tossing a coin.

*Methods of transmission.* The object, playing card, geometrical sketch, number, etc., was placed in a position in which it could be clearly seen by all the agents. If a working model it was set in motion. As a rule, silence was observed during the 10 minutes of transmission but, when remarks were made bearing on the object looked at, their gist was carefully noted by me. While one object was being shown the other objects remained in my attaché case or suit-case till the time came for using them. Each object was replaced in the attaché case as soon as the period of transmission was over.

In certain experiments, *e.g.* 12 December (i) alligator, the object was exposed to the agents for one minute only and was then removed and the agents were asked to forget about it entirely for the remaining nine minutes. The object of this was to test the theory that telepathic transmission of ideas takes place only when they have ceased to occupy the field of consciousness of the agent but are still active in his subconscious mind.

In cases when additional agents were employed a similar method was sometimes used (*e.g.* on 16 January, when 23 additional agents concentrated on the number 555 between 10.0 and 10.5 p.m., whereas the percipients did not begin to "listen in" for a three figure number till 10.10 p.m.).

#### *Group A. The twenty-seven material objects*

Material objects such as toys, pictures, flowers, etc., when used as subjects for telepathic experiments are less amenable to statistical treatment than, say, numbers or letters of the alphabet. Certain experimenters, however, including Warcollier, affirm that when a person is asked to guess a number or a playing card that person is apt to conjure up a mental image of his lucky number or favourite suit, and that this conscious activity inhibits the emergency of genuine telepathic impressions. According to Warcollier the best results are obtained when the percipient is given no hint of the nature of the impression he is expected to receive. Bearing in

mind these objections of Warcollier, I judged it wise not to eliminate entirely the "free" type of material from my experiments. At least one experiment, therefore, was as a rule arranged each week, in which the listeners-in were given no inkling of what the agents intended to transmit. In such cases the percipients were advised, e.g.: "10.0-10.10 p.m., please record all impressions."

*The selection of the objects.* The first six objects (10, 17 October) were purchased on 4 October at three different London shops. They were wrapped up and carried home and then put under lock and key. On the evening of the 9th the six objects were labelled 1, 2, 3, 4, 5, 6. Three dice were thrown together and the three objects corresponding to the numbers thrown were used in the experiment of the 10th, the numbers chosen for the intervals i, ii, iii, being in ascending order of magnitude. As explained in my description of the 1927-1928 experiments the three objects selected were wrapped in paper sealed up and carried to town in my attaché case, which was locked and left in the staff room of East London College during the morning. After 1.30 p.m. the case was continuously under my observation till the time of the experiment.

A similar procedure was adopted with most of the remaining objects, which were purchased in batches of four or six. An exception is the purchase of the postcards for 5 and 12 December and 23 January. These were usually purchased in the week preceding that in which they were required. They were handed by me to Miss Carruthers, who kept them under lock and key till the time arrived to post them to the "additional" agents. A similar exception occurred in the case of the "Skull and Bird" reprints, which were obtained by Miss Carruthers from Robert MacLehose and Co., Ltd., Glasgow, the Society's printers.

Not all the objects were purchased in London. The Calendar, for instance, of 13 February (iii) was bought by me in Kingston-on-Thames. In short, the locality was varied as much as possible as well as the day and hour of purchase.

*Explanations of Table XXXIII.*<sup>1</sup> The principle on which these "Object" Tables are devised is as follows. Each of the 27 objects has a Table devoted to it. The object is analysed into its essential components and any obvious associations with it are noted. Guesses of different degrees of approximation to the object are also given a place in the Table. It will be seen by reference to any of the Tables that each approximation or associated idea or partial component has three lines devoted to it, and that at the end of the

<sup>1</sup> The enumeration of the items connected with each of the twenty-seven objects given in Table XXXIII differs somewhat from that given in Appendix III for the Individual Scoring system. In the latter the analysis is generally carried to greater detail. It is believed, however, that the classification in Table XXXIII is quite sufficient for all practical purposes.



second and third lines are the words PREV.(=Previsional) and Post respectively.

Now all objects employed in the experiments were shown to the agents in either the first, second, or third ten minutes of the half-hour. An object shown in interval (i) (*i.e.* 10.0-10.10 p.m.) will be called a "first place" object, one shown in interval (ii) (*i.e.* 10.10-10.20 p.m.) a "second place" object, and so on. The chief aim of the Tables is to compare the number of impressions of a particular type obtained during the ten minutes of the evening on which a certain object was exhibited with numbers of the same type obtained during the ten minutes intervals of other evenings when a quite different object was being shown. To illustrate the procedure adopted we may take Table XXXIII, 19 December (ii). Here the object shown (a dog, etc.) was a "second place" object. While the agents were looking at the postcard of the "dog and pipe" from 10.10-10.20 p.m. on this date, there was one impression of a dog recorded by percipients between 10.10 and 10.20 p.m. This one is therefore recorded under 19 December in the *first* or *principal* line of the first item ("Mention of *any kind of dog*"). But there was also one impression recorded between 10.0 and 10.10 p.m., and this is recorded in the second or "previsional" line. One dog also was recorded between 10.20 and 10.30 p.m., and this is noted in the third or "post" line.

Now on the evenings of 21, 28 November, 5, 12 December, 9, 16, 23, 30 January, 13, 20 March, one *object* only was shown, and this object was a "first place" object. Hence to form as wide a basis of comparison as possible the numbers of dogs recorded on these evenings are brought into the principal or *first* line even though the impressions were all noted in interval (i), *i.e.* 10.0-10.10 p.m.

On 10, 17 October, there were three objects shown. On each of these dates the first or principal line gives the numbers of dogs recorded in interval (ii) (10.10-10.20). Those in interval (i) occur in the previsional or second line, and those impressions of dogs recorded in interval (iii) (10.20-10.30 p.m.) are to be found in the "Post" or third line. On 13 February there was only one object, and this was a "third place" object. Hence for comparison, the number of dogs obtained between 10.20 and 10.30 is brought into the first or principal place.

Again on 7, 14 November, 24, 31 October respectively, two objects only were shown, these being first place and second place objects. On each of these dates, therefore, it is the number of dogs recorded in interval (ii) (10.10-10.20 p.m.) which is put in the principal or first place, while the numbers recorded in the first interval (10.0-10.10 p.m.) are to be found in the previsional or second line. On these dates there are no impressions of dogs in the third or "Post"

line since the third interval was devoted to a geometrical or number or capital letter test.

Table XXXIII, 13 February (iii), illustrates the case of a "third place object." On dates when there were first and second place objects but no third place objects, the number of impressions obtained while the "second place object" was being shown are brought up into the principal or first line, while those obtained while the first place object was being shown occupy the "previsional" or second line. On 10, 17 October, when there is a third place object the numbers of impressions occurring in the third interval (10.20-10.30) are recorded in the first or principal line. In this case the numbers which occur in the first and second intervals are added together and the sum is placed in the second or "previsional" line. On 10, 17 October there will be no impressions in the "post" line.

On dates like 9, 16 January, etc., where only one object (a "first place" object) is shown, the impressions recorded in the first interval (10.0-10.10 p.m.) are brought up into the principal line, while the "post" and previsional lines will be empty.<sup>1</sup>

We have then these facts to bear in mind in studying these Tables. In all Tables where the object of experiment is a "first place" object all the "previsional" or second lines will be empty, while on 10, 17 October, and on these dates only, the numbers occupying the *third* or "post place" will represent the numbers of impressions obtained in the *twenty* minutes (10.10-10.30) instead of in the usual ten minutes. These twenty minute intervals are distinguished in the Tables by being printed in heavy type. On dates like 7 November, where a first and second place object were shown the impressions recorded in interval (i) will of course occupy the principal line.

In all Tables where the object shown is a "*third place*" object, the *third* or *post* lines will be empty on all dates while on 10, 17 October and these dates only the number in the second or "previsional" line will represent numbers of impression obtained in the first twenty minutes instead of in the usual ten minutes. These twenty minute intervals are distinguished in the Tables by being printed in heavy type.

It will be noted that the dates 6, 20, 27 February, 6, 27 March, are omitted from the Tables. On these evenings no material object was exhibited.

*Deductions from Table XXXIII.* Making where necessary a slight allowance for the variations in the weekly numbers of perci-

<sup>1</sup> Occasionally solitary impressions occur in a line or position that should normally be empty. These stray impressions arise through a percipient recording a successful impression relating to a material object in a geometrical or number test.

pipients it will be apparent from an inspection of these Tables that very rarely indeed is there a superiority in the numbers of impressions for the different items on the evening on which a certain object was exhibited over the other evenings when the object was not shown. There is perhaps only one notable exception. On 10 October (i) there appears to be a definite superiority in the numbers of flowers and even of red flowers. This is the only really marked case that could be construed as being favourable to the supernormal. There are also very slight superiorities on 17 October (i) (Explosion of Bomb), and on 21 November (i) (Wheels and Rotation). Perhaps also on 13 February (iii) (Dogs) there is a very slight superiority, and on 13 March (i) (Ducks).

So far as can be judged from these Tables the introduction of the 25 or so additional agents seems to have produced no perceptible effect upon the number of successes.

The special experiments, 19 December (i), 9 January (i), 16 January (i), in which the percipients were asked to imagine the object concealed under a black cloth, and also the similar experiment 13 March (i) with the attaché case, were for the purpose of testing a theory of M. René Warcollier. According to this investigator when a number of persons fix their minds on the same or similar objects they may be put into telepathic communication among themselves. It was hoped that to provide the percipients with a common starting point for their thoughts might either conduce to successful guessing of the object beneath the cloth, etc., or failing this cause a considerable number of percipients to think of similar objects or even of the same three figure numbers in the succeeding intervals (ii) or (iii), that is produce "mental contagion" among the listeners-in of a supernormal and not merely suggestive variety.

Neither of these hopes has been realised. The chief effect of using the black cloth on 19 December was to produce, obviously by contrast, an exceptional crop of impressions of white objects such as eggs, skulls, ivory models of famous buildings, white statuary and also be it noted of canaries and bird-cages. These effects were not so marked on 9 January, when the black cloth was used for the second time, but they were still appreciable.

If the reader will turn to the "number coincidence" Table (Table XXIV) he will see that there was no sudden increase on 9 and 16 January in experiment (ii) in the three figure numbers which were guessed two or more times. Thus we find that the only kind of "mental contagion" noted on these occasions was that of simple ideas naturally associated with a black cloth.

In a similar way the focussing of attention on the attaché case (13 March (i)) appears to have caused an unusual number of percipients to think of books, parcels and articles of toilet or dress.

*Special experiment on 19 December 1928.* I am greatly indebted to M. René Warcollier for arranging a novel experiment on 19 December. On that evening M. Pascal Forthuny was giving a public demonstration of clairvoyance to an audience of 300 people in Paris. Shortly before 10 p.m. M. Warcollier read aloud the weekly instructions to percipients for 19 December, and explained that experiments (i) and (iii) only would be attempted. The audience wrote their impressions on scraps of paper and signed them. I received, however, from M. J. Buraud only 58 papers; apparently the remainder of the audience had not thought it worth while to hand in their impressions.

Only experiment (i) need concern us since it happened that (iii) was a geometrical "control." The object shown in (i) was the organ-grinder and monkey revealed by raising the black cloth. The impressions sent in by the 58 Paris percipients were for the most part names of common objects such as "bird-cage," "violin," "teaspoon," "book," "crystal ball," "skull," "bottle," etc. The experiment was a complete failure. The impression of M. Pascal Forthuny, one of the percipients, read "Objet métallique pointu d'un bout. Brilliant."<sup>1</sup>

*Influence of seasons, etc.* As might be expected the numbers in Table XXXIII are to some extent subject to seasonal and occasional influence. Thus Table XXXIII, 28 November (i), we note that the popularity of chrysanthemums is greatest in October and November, but tends to diminish after Christmas, while during February and March the impressions of yellow flowers increase owing to the blooming of the jonquils and daffodils. In the same way there is a little cluster of "poppy" impressions (Table XXXIII, 10 October (i) between 7 and 21 November) due doubtless to the proximity of Armistice Day.

*Suggested use of Table XXXIII.* It is hoped that these Tables will be useful in future telepathic experiments, since from them may be derived the approximate probabilities that the average person will guess by chance a large variety of objects if he remains passive for about ten minutes and records about 1.85 distinct impressions,<sup>2</sup> this being about the *average* number of separate impressions recorded by each percipient during the ten minutes in which an *object* was concentrated upon.

Let us take for instance 19 December (i) (dog in cap with pipe). The total records of all the percipients in the 27 object experiments are equivalent to 8784 ten minute intervals. The total number of

<sup>1</sup> The organ-grinder was certainly made of metal, but the description is too vague to have any value.

<sup>2</sup> For a discussion and investigation of the "average number of impressions" in the ten minute interval please see Appendix IV of this paper.

dogs guessed during the 27 experiments is 111. Hence the chance that a single average percipient under these circumstances should guess a dog of any kind is about  $\frac{111}{8784}$ , i.e. about 1 in 79. Similarly the chance of guessing a cap, hat, turban or helmet is  $\frac{111}{8784} = 1$  in 75 about. Hence the chance of an average percipient mentioning both a dog and some sort of head-covering in the same ten minutes is about  $\frac{1}{75} \times \frac{1}{79} = \frac{1}{5925}$ .

Actually we find on referring to Table XXXIII, 19 December (i), Item 2, that one percipient (no. 451, 20 March (i)) recorded the impression "Postcard of bull dog with sailor cap on head and Union Jack on back." As there are 8784 distinct ten minute trials the mention of dog and head-covering might be expected to occur at least once.<sup>1</sup> Here, of course, they are not only mentioned separately but associated.

*The individual scoring system.* By the use of Table XXXIII, as explained in the last section, it would be possible to construct for each object an approximate scoring scheme by allocating to each successful guess a score of  $-\log p$  where  $p$  = the probability of an individual percipient guessing the item correctly in the ten minute interval.

I have not, however, carried out this plan for the reason that I had scored the whole of the individual percipients' records on an arbitrary scoring system before Table XXXIII was completed, and re-scoring would involve very great labour. This arbitrary scheme, of which full details are given at page 280 below, is carefully graded and serves well enough to compare the achievements of one group of percipients with that of another. Sixty marks are allotted for each evening's work, i.e. twenty marks for each experiment (i), (ii), and (iii) in which an object, three figure number, capital letter, etc., was actually shown to the agents. Hence omitting the control experiments which were not scored, the greatest possible score any one percipient could obtain would be 1020. To get this score the percipient would have had to do 23 weeks' work and never to have acted as an additional agent. The percentage score of a percipient is obtained by multiplying 100 by the ratio of his actual score to his possible score, which latter represents the full marks the percipient could have obtained on the actual experiments in which he took part, those in which he acted as an additional agent not being scored. As the scoring system is not constructed on any strict statistical principles the distribution of scores among the percipients is not precisely a normal distribution. Moreover, the present system cannot be

<sup>1</sup> In the above argument a simplified view is taken of the question as it is assumed that the guessing of a dog and of a hat are mutually independent events. This may not really be the case.

used to determine whether any particular percipient's achievement is due to chance or not; but it does serve to compare the joint achievement of one large group with that of another.

*Distribution of the experiments among the 579 percipients.* One to four weeks' work was done by 172 percipients, five to nine weeks' by 100, 10-14 weeks' by 91, 15-19 weeks' by 109, 20 weeks' by 28, 21 weeks' by 22, 22 weeks' by 32, and the full number of 23 weeks' work was done by 25 percipients.

### *Comparison of Different Groups*

In the following analysis I have thought it worth while to consider only the 374 percipients whose *possible* scores equal or exceed 300, which is roughly the equivalent of five weeks' work. The object of this restriction is to allow each percipient time to "settle down" to his average or normal performance.

The distribution of these 374 actual percentage scores is not precisely a normal distribution. Nor had we any reason to expect a quite normal distribution on so arbitrary a system of scoring. If we take as the score of a percipient the percentage ratio of his actual numerical marks to his total possible marks, we find that the mean score of a percipient is 6.48. The mode of the distribution is 5.50 and the standard deviation is 3.07. Employing the notation given in D. Caradog Jones's *A First Course of Statistics* (1927), p. 205, we find for our distribution:  $\beta_1 = -.225$ ;  $\beta_2 = 2.95$ ;  $\kappa = -.230$ . (For a normal distribution  $\beta_2$  should be about three, which is nearly correct, but  $\beta_1$  should be about zero.) Perfect normality is, therefore, destroyed by a certain skewness which can be calculated in terms of  $\beta_1$  and  $\beta_2$  from Mr Jones's formula (16, p. 205). This skewness works out to be .32 and equals  $[\text{Mean} - \text{Mode}] \div \text{Standard Deviation}$ . From this result we deduce the value 5.50 for the mode,<sup>1</sup> which agrees fairly with that found from the Graph.

We find that 65 per cent. of the scores lie within the range  $\text{Mean} \pm \text{Standard Deviation}$ , i.e. between 3.41 and 9.55, and 95 per cent. lie within the range  $\text{Mean} \pm 2 \times \text{Standard Deviation}$ , i.e. between 0.34 and 12.62. These results would agree pretty closely with those expected from a normal distribution.

We may consider that the number of observations (374) is sufficient to determine the type of distribution within the limits,  $\text{Mean} \pm 2 \times \text{Standard Deviation}$  but insufficient to give trustworthy information outside those limits. For the actual tabulation of the distribution see Table II and the graphs.

In order to investigate whether or not any sub-sample of the

<sup>1</sup> By the mode is meant the most fashionable or popular score. In a normal distribution the mode would be identical with the mean or average.

374 percipients is abnormal when compared with the whole we may make use of a formula given in *Biometrika*, v. 182, and the data of the distribution given above are consistent with the use of this formula (see A. L. Bowley, *Elements of Statistics*).

The formula is as follows: If a distribution is known only by a sample  $n$ , the mean being  $x$  and the standard deviation  $s$ , and if for a sub-sample  $n_1$ , the mean is  $x_1$ , and the standard deviation  $s_1$ , then the standard deviation of the difference  $x - x_1$  denoted by  $\sigma$  is given by the result:

$$\sigma^2 = \frac{s_1^2}{n_1} + \frac{s^2 - 2s_1^2}{n} - \frac{n_1(x - x_1)^2}{n(n - n_1)}.$$

The last term will usually be so small that it can be neglected. In our case

$$n = 374, x = 6.48, s = 3.07.$$

$n_1$  may be taken, for example, to be the number of percipients who were automatic writers or the number of premonitionists as the case may be.

We are now in a position to compare the performances of the different sub-groups of percipients.

*Psychics v. Remainder.* Of the 364 persons who mentioned having had psychic experiences there were 160 with possible scores  $\geq 300$ . The mean score  $x_1$  of this group was found to be 6.45 with a standard deviation  $s_1 = 3.00$ . Hence  $n_1 = 160$ ,  $x_1 = 6.45$ ,  $s_1 = 3.00$ ,  $x = 6.48$ ,  $s = 3.07$ , and using the above formulae we find  $\sigma = .18$ .

$$\text{Hence } \frac{x - x_1}{\sigma} = \frac{.03}{.18} = \frac{1}{6}.$$

On the whole, therefore, the average performance of the "psychics" is neither better nor worse in any significant sense than that of the whole group of 374 percipients.

*Automatists v. Remainder.* There were 46 automatists (planchette or automatic writers) with possible scores  $\geq 300$ . The mean score of this group was 5.90 with a standard deviation  $s_1 = 2.66$ . Hence with  $n_1 = 46$ ,  $x_1 = 5.90$ ,  $s_1 = 2.66$ ,  $x = 6.48$ ,  $s = 3.07$ , we find

$$\sigma = .37. \text{ Hence } \frac{x - x_1}{\sigma} = \frac{.58}{.37} = 1.6. \text{ Again the deviation is without significance.}$$

*Telepathists v. Remainder.* There were 99 percipients who claimed to have had experiences in telepathy and whose possible scores were  $\geq 300$ . For this group the mean  $x_1 = 6.53$ , the standard deviation  $s_1 = 2.96$ . Hence with  $n_1 = 99$ ,  $n = 374$ ,  $x = 6.48$ , we find  $\sigma = .26$ .

$$\text{Hence } \frac{x_1 - x}{\sigma} = \frac{.05}{.26} = \frac{1}{5} \text{ (nearly). Hence result is without significance.}^1$$

<sup>1</sup> For significance the ratio  $\frac{x_1 - x}{\sigma}$  should exceed 2 at least.

*Premonitionists v. Remainder.* There were 43 percipients with possible scores  $\geq 300$  who claimed to have had previsions or premonitory dreams. For this group the mean  $x_1 = 6.50$ . The standard deviation  $s_1 = 3.03$ . Hence we find  $\sigma = .43$ . Hence

$$\frac{x - x_1}{\sigma} = \frac{.02}{.43} = \frac{1}{21} \text{ (nearly). Hence result is without significance.}$$

*Effect of practice.* Of the 55 percipients who took part in the 1927-1928 experiments and carried on with the new series, only 33 did enough work to obtain possible scores of  $\geq 300$ . For this group the mean score  $x_1 = 6.59$ . The standard deviation  $s_1 = 3.01$ .

Hence with  $n_1 = 33$  we find  $\sigma = .50$ . Hence  $\frac{x_1 - x}{\sigma} = \frac{.11}{.50} = \frac{1}{5}$  (approx.).

Hence result is without significance, and practice appears to have had no influence on success.

*The blind percipients.* Of the 18 blind percipients only nine had possible scores  $\geq 300$ . For this group the mean score  $x_1 = 6.89$ ,

$s_1 = 1.72$ . Hence  $\sigma = .58$ . Hence  $\frac{x_1 - x}{\sigma} = \frac{.41}{.58} = \frac{2}{3}$  (nearly). Hence result is without significance.

*Men v. Women.* Of the 374 persons with possible scores  $\geq 300$ , 156 were men and 218 women. For the men the mean score  $x_1 = 6.36$ . Standard deviation  $s_1 = 2.97$ . Hence with  $n_1 = 156$  we

find  $\sigma = .18$ . Hence  $\frac{x - x_1}{\sigma} = \frac{.12}{.18} = \frac{2}{3}$ .

For the 218 women the mean score  $x_1 = 6.56$ . The standard deviation  $s_1 = 3.14$ . Hence with  $n_1 = 218$  we find  $\sigma = .13$ . Hence

$$\frac{x_1 - x}{\sigma} = \frac{.08}{.13} = \frac{8}{13}. \text{ Hence neither the men nor the women have any}$$

significant superiority over the general average.

*Effect of distance.* We may ask: Have the London percipients scored a higher degree of success than the average? We have: Number of people residing in the London Postal District with possible scores  $\geq 300$  was 93. The mean score of this group was  $x_1 = 6.69$ . Standard deviation  $s_1 = 3.25$ . Hence with  $n_1 = 93$  we

find  $\sigma = .28$ . Hence  $\frac{x_1 - x}{\sigma} = \frac{.21}{.28} = \frac{3}{4}$ . Hence result is without significance.

The close approximation of the means of all these sub-groups to the mean of the whole is an argument against the existence of any supernormal perception in the mass. The separate Tables showing the evaluation of  $s_1$  and  $x_1$  for each of the above sub-groups may be inspected at the S.P.R. Rooms by anyone wishing to do so.



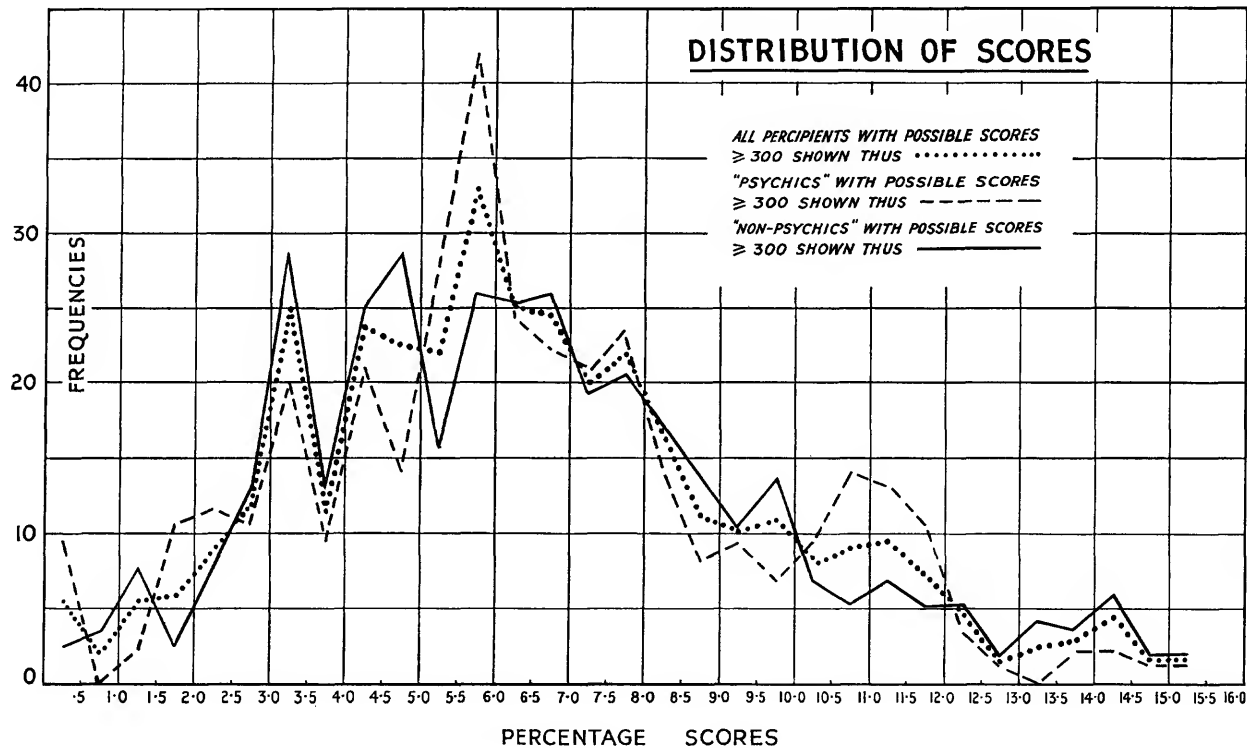


TABLE II

SHOWING THE DISTRIBUTION OF SCORES AMONG THE 374 PERCIPIENTS  
WITH POSSIBLE SCORES  $\geq 300$  AND THE CONSTANTS OF THE  
DISTRIBUTION.

SCORE.	$x$	$F$	$Fx$	$Fx^2$	$Fx^3$	$Fx^4$
0.0-0.5	-13	5.5	-71.5	929.5	-12083.5	157085.5
0.5-1.0	-12	2.0	-24.0	288.0	-3456.0	41472.0
1.0-1.5	-11	5.5	-60.5	665.5	-7320.5	80525.5
1.5-2.0	-10	7.0	-70.0	700.0	-7000.0	70000.0
2.0-2.5	-9	9.5	-85.5	769.5	-6925.5	62329.5
2.5-3.0	-8	12.0	-96.0	768.0	-6144.0	49152.0
3.0-3.5	-7	25.0	-175.0	1225.0	-8575.0	60025.0
3.5-4.0	-6	11.5	-69.0	414.0	-2484.0	14904.0
4.0-4.5	-5	23.5	-117.5	587.5	-2937.5	14687.5
4.5-5.0	-4	23.0	-92.0	368.0	-1472.0	5888.0
5.0-5.5	-3	22.5	-67.5	202.5	-607.5	1822.5
5.5-6.0	-2	33.5	-67.0	134.0	-268.0	536.0
6.0-6.5	-1	25.5	-25.5	25.5	-25.5	25.5
6.5-7.0	0	24.5	—	—	—	—
7.0-7.5	+1	20.5	+20.5	20.5	+20.5	20.5
7.5-8.0	+2	21.5	+43.0	86.0	+172.0	344.0
8.0-8.5	+3	16.0	+48.0	144.0	+432.0	1296.0
8.5-9.0	+4	11.5	+46.0	184.0	+736.0	2944.0
9.0-9.5	+5	10.0	+50.0	250.0	+1250.0	6250.0
9.5-10.0	+6	11.0	+66.0	396.0	+2376.0	14256.0
10.0-10.5	+7	8.0	+56.0	392.0	+2744.0	19208.0
10.5-11.0	+8	9.0	+72.0	576.0	+4608.0	36864.0
11.0-11.5	+9	9.5	+85.5	769.5	+6925.5	62329.5
11.5-12.0	+10	7.5	+75.0	750.0	+7500.0	75000.0
12.0-12.5	+11	4.5	+49.5	544.5	+5989.5	65884.5
12.5-13.0	+12	1.5	+18.0	216.0	+2592.0	31104.0
13.0-13.5	+13	2.5	+32.5	422.5	+5492.5	71402.5
13.5-14.0	+14	3.0	+42.0	588.0	+8232.0	115248.0
14.0-14.5	+15	4.5	+67.5	1012.5	+15187.5	227812.5
14.5-15.0	+16	1.5	+24.0	384.0	+6144.0	98304.0
15.0-15.5	+17	1.5	25.5	433.5	+7369.5	125281.5
Totals -	-	374.0	-200.0	14246.0	+18478.5	+1512002.0

$$\begin{aligned}
 \text{We have } \Sigma Fx &= -200.0, & \Sigma Fx^2 &= 14246.0, \\
 \Sigma Fx^3 &= +18478.5, & \Sigma Fx^4 &= +1512002.0. \\
 \frac{\Sigma Fx}{\Sigma F} &= \frac{-200}{374} = -.5347. & \frac{\Sigma Fx^2}{\Sigma F} &= \frac{14246.0}{374} = 38.091. \\
 \left[ \frac{\Sigma Fx}{\Sigma F} \right]^2 &= .2859, & \frac{\Sigma Fx^3}{\Sigma F} &= \frac{18478.5}{374} = 49.41. \\
 \frac{\Sigma Fx^4}{\Sigma F} &= \frac{1512002.0}{374} = 4042.786.
 \end{aligned}$$

$$\text{Mean} = 6.75 + \frac{\Sigma Fx}{\Sigma F} \times .5 = 6.75 - 0.27 = 6.48.$$

$$\nu_2 = \frac{\Sigma Fx^2}{\Sigma F} - \left[ \frac{\Sigma Fx}{\Sigma F} \right]^2 = 38.091 - .2859 = 37.805.$$

$$\text{Standard Deviation} = .5 \times \sqrt{\nu_2} = .5 \times 6.15 = 3.07.$$

$$\nu_3 = \frac{\Sigma Fx^3}{\Sigma F} - 3\nu_2 \cdot \frac{\Sigma Fx}{\Sigma F} - \left[ \frac{\Sigma Fx}{\Sigma F} \right]^3 = 110.15.$$

$$\nu_4 = \frac{\Sigma Fx^4}{\Sigma F} - 4\nu_3 \cdot \frac{\Sigma Fx}{\Sigma F} - 6\nu_2 \cdot \left[ \frac{\Sigma Fx}{\Sigma F} \right]^2 - \left[ \frac{\Sigma Fx}{\Sigma F} \right]^4 = 4213.46.$$

$$\text{The constant } \beta_1 = \frac{\nu_3^2}{\nu_2^3} = \frac{[110.15]^2}{[37.805]^3} = .225.$$

$$\text{The constant } \beta_2 = \frac{\nu_4}{\nu_2^2} = \frac{4213.46}{[37.805]^2} = 2.95.$$

$$\text{Skewness} = \frac{[\beta_2 + 3] \sqrt{\beta_1}}{2[5\beta_2 - 6\beta_1 - 9]} = .32.$$

$$\text{Hence since } \text{Skewness} = \frac{\text{Mean} - \text{Mode}}{\text{Standard Deviation}},$$

we find on substituting the value 6.48 for the Mean and 3.07 for the Standard Deviation, that the *Mode* is 5.50.<sup>1</sup>

*The graph.* The dotted curve shows the distribution of percentage mean scores among the 374 percipients with possible scores  $\geq 300$ . The percentage mean scores are represented along the horizontal axis and the *area* included between the graph, the horizontal axis and two vertical lines through any two points on the percentage score axis (e.g. 3 and 7) is proportional to the number of percipients whose scores lay between these two values (i.e. 3 per cent. and 7 per cent.). A similar curve (broken) is drawn for the 160 "psychics" with possible scores  $\geq 300$  and a ruled curve for the remaining 214 "non-psychics." The vertical scales of the three curves are so adjusted that the *total area* underneath each graph is the *same*.

<sup>1</sup> The notation employed in the above computations is that given by Jones, *op. cit.*, pp. 213-4.

It will be seen that the three curves follow each other very closely on the whole, and there seems no justification for assuming that the distribution for the "psychics" differs from that for the "non-psychics," or from that of the whole.

*Further Note on Individual Scoring of the 27 Objects*

It should be noted that in cases where a percipient recorded more than one visualisation or distinct impression on an evening such as 9 January when only one material object was shown, the impression to be scored was chosen by the throw of dice as explained fully in Appendix IV. On an evening such as 10 October on which more than one material object was looked at, in cases where a percipient recorded a successful impression in the same ten minute period as that in which the relevant object was shown, the impression to be scored was selected from this interval. If, however, the percipient noted a successful guess in a ten minute interval other than that in which the corresponding object was shown dice were first thrown to decide from which interval an impression was to be chosen for scoring. A percipient, therefore, who gave a right guess in the wrong ten minute interval had a certain chance of gaining marks for his guess but not such a good chance as one who recorded his impression in the correct interval. Such restrictions as these were necessary in order to put all the percipients on a common basis as far as possible.

*Distribution of successful contemporaneous hits on the 27 objects  
by the 579 percipients*

By a "contemporaneous" successful hit is meant any correct impression of an object recorded in the same ten minutes during which the agents looked at the object. It must be mentioned, however, that in what follows the successful guess was allowed to count even when the percipient had recorded more than one distinct visualisation in the same ten minutes. That is to say, there was no selection by dice.

(a) Four percipients obtained five successful contemporaneous hits each. These were nos. 118, 255, 338 and 421. Their total possible scores were 1020, 920, 860 and 960 respectively. Their average<sup>1</sup> numbers of visualisations or sensations recorded per ten minute interval were 3.19, 3.04, 2.42, 1.48. Their percentage mean scores were 11.2%, 13.5%, 15.2% and 11.5% respectively.

(b) Two percipients (8 and 557) obtained four successful contemporaneous hits each. Their total possible scores were 1020 and

<sup>1</sup> This average per ten minute interval for the whole of the 579 percipients is 1.85. The averages for groups (c) and (d) were 2.81 and 2.18 respectively.

720 respectively, and their average numbers of visualisations or sensations recorded per ten minute interval were 2.52 and 3.44 respectively. Their percentage mean scores were 10.6% and 13.1%.

(c) Thirteen percipients obtained three successful contemporaneous hits each. The average possible score of this group was 884, and the mean percentage score of the group was 9.1%.

(d) Thirty-nine percipients obtained two successful contemporaneous hits. The average possible score of these was 741. The mean percentage score of this group was 8.3%.

A successful hit, of course, may be a very slight success indeed, and may therefore receive only a low mark. It by no means follows that the percipients with the most successful hits with the 27 objects obtained the highest percentage scores. Moreover, a high percentage score on the whole series may be the result of exceptional success with the statistical material (*i.e.* numbers, playing cards, etc.) rather than with the objects.

*Examples from (a) and (b).* I shall here quote one or two specimen examples from groups (a) and (b).

(i) *Percipient no. 557.* Score =  $94/720 = 13.1\%$ .

Date.	Impression.	Object of Experiment.
10 Oct. (ii)	A wigwam with grasses.	(ii) Indian tomahawk.
14 Nov. (ii)	A figure of a man in flannels poling.	(ii) Bear on hind legs with pole.
21 Nov. (i)	Something circular whirling round.	(i) The rotating wheel of the scissors grinder.
13 Feb. (iii)	A fox seated.	(iii) Picture of Alsatian dog. (Fox-like head.)

The above is one of the most interesting records, but the percipient was not very successful with the statistical material.

(ii) *Percipient no. 255.* Score =  $124/920 = 13.5\%$ .

Date.	Impression.	Object of Experiment.
31 Oct. (i)	A large man with green plush hat and goggles.	(i) A duck in goggles and tall hat.
31 Oct. (ii)	A fan-shaped object.	(ii) A paper ornament which folded up like a fan.
28 Nov. (i)	A briar rose.	(i) Yellow chrysanthemums.
19 Dec. (ii)	A bulldog.	(ii) Dog with pipe and cap.
23 Jan. (i)	Flowers.	(i) A red rose.

Especially noticeable is the "double" success on 31 October (i) and (ii).

(iii) *Percipient no. 118.* Score =  $114/1020 = 11.2\%$ .

Date.	Impression.	Object of Experiment.
10 Oct. (i)	A red book.	(i) Red poppies.
7 Nov. (i)	A vivid impression of red. A deep red tie.	(i) Scarlet sheets of paper and red dunce cap.
28 Nov. (i)	Impression of a yellow ladder.	(i) Yellow paper and yellow chrysanthemums.
9 Jan. (i)	A red object (an apple?).	(i) A red apple.
13 March (i)	Orange colour.	(i) A yellow duck with orange feet and bill.

Practically all the successes here are impressions of colour.

*The distribution of high scores.* Of the 374 percipients whose possible scores equal or exceed 300, the distribution of the higher percentage scores is as follows :

TABLE III

Score.	Number of Percipients.
15.0-15.5	2 (nos. 338 and 519)
14.5-15.0	1 (no. 382)
14.0-14.5	5
13.5-14.0	1
13.0-13.5	4
12.5-13.0	2
12.0-12.5	4
11.0-12.0	18
10.0-11.0	17
9.0-10.0	20
8.0- 9.0	29
7.0- 8.0	46

Mean percentage score = 6.48.

It is noteworthy that the three percipients who obtained the highest scores were not particularly successful with the 27 objects, but obtained a considerable number of partial successes with three figure numbers, capital letters, etc.

It will be sufficient as specimens to quote the successes of percipients nos. 338, 519 and 382.

TABLE IV

*Percipient no. 338.* Score =  $131/860 = 15.2\%$  (highest score).

Date.	Impression.	Object of Experiment.
10 Oct. (i)	Casual mention of "red."	(i) Red poppies.
17 Oct. (ii)	A ship ( <i>Post</i> ).	(i) A sailing yacht.
17 Oct. (iii)	"Fireworks." "Blackness."	(iii) Indoor fireworks. Stars in darkness.

Date.	Impression.	Object of Experiment.
31 Oct. (i)	A <i>bird</i> in a cage.	(i) A yellow duck.
21 Nov. (iii)	Equilateral triangle.	(iii) Equilateral triangle.
28 Nov. (iii)	Many concentric circles drawn [more than three].	(iii) Three concentric circles.
19 Dec. (i)	"A couple dancing."	(i) Dancing monkey on organ.
16 Jan. (i)	Glass vase.	(i) Chinese cup and saucer.
23 Jan. (ii)	479.	(ii) 491.
23 Jan. (iii)	"2 of Hearts."	(iii) 2 of Diamonds.
30 Jan. (i)	Small animal [furry].	(i) Furry toy bear.
30 Jan. (ii)	562	(ii) Number 222.
30 Jan. (iii)	Letter A.	(iii) Letter H.
6 Feb. (i)	8 of Hearts.	(i) 4 of Spades.
6 Feb. (ii)	Number 796.	(ii) Number 777.

TABLE V

*Percipient no. 519.* Score =  $120/800 = 15.0\%$ .

Date.	Impression.	Object of Experiment.
17 Oct. (i)	Large round green ball like <i>balloon</i> ( <i>Prev.</i> ).	(ii) Firework balloon.
24 Oct. (ii)	" <i>Violin</i> on red cloth" ( <i>Post</i> ).	(i) Toy mandolin.
21 Nov. (iii)	Equilateral triangle inscribed in a circle.	(iii) Equilateral triangle.
28 Nov. (ii)	Number 814.	(ii) Number 444.
28 Nov. (iii)	Three <i>intersecting</i> circles.	(iii) Three <i>concentric</i> circles.
5 Dec. (ii)	Number 658.	(ii) Number 888.
9 Jan. (i)	Impression of <i>red</i> object.	(i) <i>Red</i> apple.
9 Jan. (ii)	The number 591.	(ii) The number 581.
16 Jan. (i)	"Large china bowl."	(i) Chinese cup and saucer.
16 Jan. (ii)	Number 555.	(ii) Number 555.
23 Jan. (iii)	King of Hearts.	(iii) 2 of Diamonds.
20 Feb. (i)	Ace of Clubs.	(i) 6 of Clubs.
27 Feb. (i)	5 of Hearts.	(i) 5 of Hearts.

TABLE VI

*Percipient no. 382.* Score =  $136/920 = 14.8\%$ .

Date.	Impression.	Object of Experiment.
24 Oct. (iii)	Drawing of half of a Maltese cross.	(iii) Maltese cross.
31 Oct. (iii)	Drawing of concentric spirals.	(iii) Three circles in triangular formation.
14 Nov. (iii)	Pentagon.	(iii) Pentagon.
21 Nov. (ii)	47-.	(ii) Number 424.
5 Dec. (i)	"Feeling of something being killed."	(i) Mention of hunting a kangaroo.

Date.	Impression.	Object of Experiment.
5 Dec. (ii)	Number 586.	(ii) Number 888.
5 Dec. (iii)	Letter "E" persisted.	(iii) Letter F.
12 Dec. (i)	Saw a <i>pike</i> .	(i) An <i>alligator</i> .
19 Dec. (ii)	A little dancing man ( <i>Post</i> ).	(i) A dancing monkey on organ.
23 Jan. (ii)	The number 491.	(ii) Number 491.
23 Jan. (iii)	2 of Hearts.	(iii) 2 of Diamonds.
6 Feb. (i)	Jack of Spades.	(i) 4 of Spades.

Note the interesting "double" success on 23 January.

*A few typical impressions.* We may conclude our discussion of the 27 objects by citing a few of the more interesting impressions obtained under various dates. It will be seen that the great majority of these are isolated successes, which are obtained by percipients with only an average score on their total output.

1. Date: 10 October (i). Percipient: no. 282. Score: 32/320 = 10.0%. Impression: (i) A field of poppies. Object of experiment: (i) Red artificial poppies.

2. Date: 24 October (i). Percipient: no. 232. Score: 87/720 = 12.1%. Impression: (i) A *coloured caricature*; *nose* being prominent feature. Object of experiment: (ii) A long salmon-coloured cardboard nose.

3. Date: 31 October (iii). Percipient: no. 232. Score: 87/720 = 12.1%. Impression: (iii) (*Post*) Mention of honeycomb and suggestion of squared paper. Object of experiment: (ii) A paper ornament honeycombed with cells.

4. Date: 28 November (i). Percipient: no. 232. Score: 87/720 = 12.1%. Impression: (i) Strands of gold cream wool wound round something. Object of experiment: (i) Sheets of yellow paper.

5. Date: 13 March (i). Percipient: no. 152. Score: 70/640 = 10.9%. Impression: (i) "A duck or drake moving head and opening bill." Object of experiment: (i) A toy yellow duck.

6. Date: 13 March (i). Percipient: no. 156. Score: 69/820 = 8.4%. Impression: (i) A toy *yellow duck* on wheels. Object of experiment: (i) A toy *yellow duck* not on wheels.

7. Date: 10 October (ii). Percipient: no. 440. Score: 43/880 = 4.9%. Impression: (ii) A domestic chopper being used. Object of experiment: (ii) A tomahawk.

8. Date: 10 October (iii). Percipient: no. 440. Impression: (iii) Model head of negro. Object of experiment: (iii) Small female Egyptian head with tape measure.

Note "double" success.

9. Date: 14 November (i). Percipient: no. 227. Score: 38/500 = 7.6%. Impression: (i) "A string of pearls." Object of experiment: (i) White mistletoe berries.



10. Date : 14 November (ii) (*Post*). Percipient : no. 568. Score :  $89/920 = 9.7\%$ . Impression : (ii) Branch of holly and dark green leaves. Object of experiment : (i) Mistletoe and green leaves.

11. Date : 19 December (ii) (*Post*). Percipient : no. 229. Score :  $44/700 = 6.3\%$ . Impression : (ii) (*Post*) "Rapid motion becoming faster and faster like some part of a machine revolving rapidly or a hand turning a handle very quickly." Object of experiment : (i) Organ-grinder turning handle of street organ.

12. Date : 13 February (iii). Percipient : no. 152. Score :  $70/640 = 10.9\%$ . Impression : (iii) A wolf. Object of experiment : (iii) An Alsatian dog.

13. Date : 17 October (i) and (iii). Percipient : no. 160. Score :  $46/620 = 7.4\%$ . Impression : (i) Pink toy balloon on string. Something bursts or breaks. It made a bang (*Prev.*). (iii) Heaps of paper streamers. He stirs them up with a poker (*Post*). Object of experiment : (ii) A small bomb ignited and paper scattered about room. A paper balloon was lighted and rose to the ceiling. [Rather a curious impression.]<sup>1</sup>

14. Date : 20 March (i). Percipient : no. 383. Score :  $113/840 = 13.5\%$ . Impression :

"A wee bird came tae our door.  
He warbled sweet and clearly ;  
But aye it e'er came to this song  
Was Wae's me for Prince Charlie."

Object of experiment : (i) Picture of a *bird* perched on a *skull*. NOTE.—The percipient associates the idea of a *bird* with disaster or tragedy.

15. Date : 10 October (i) (*Prev.*). Percipient : no. 504. Score :  $79/1020 = 7.7\%$ . Impression : (i) "A metal head of Egyptian." Object of experiment : (iii) A small female Egyptian head with tape measure protruding from mouth.

*Concluding remarks on the 27 objects.* While a careful study of Tables XXXIII gives no indication of any constantly operating faculty of supernormal perception among the mass of the percipients, it must be freely admitted that the accuracy of certain isolated impressions, or in some cases small groups of impressions, baffle all analysis. If certain of the successes described in the preceding sections are due to telepathy, we can only conclude that this faculty is so occasional, so sporadic in its operation, as to be undiscoverable by statistical analysis.

<sup>1</sup> It is an instructive illustration of the scope of chance to compare this impression with one obtained by no. 317 on 23 January (i), which reads : "Burning paper. Girl with cigarette. Air balloon. Flash of light."

*Special experiment on 6 March.* Between 10.0 and 10.10 on 6 March 1929 a special attempt was made by the agents to transmit the idea of the first verse of Blake's poem "The Tiger":

"Tiger, tiger burning bright,  
In the forests of the night,  
What immortal hand or eye  
Could frame thy fearful symmetry?"

A sealed envelope was sent to 23 additional agents, containing a white card on which the above verse was written in red ink. The notice sent out to the 230 percipients who took part was as follows: "10.0 p.m. Think over and write out a verse of poetry of *not more* than 5 lines and record all impressions." The 23 additional agents were requested to break the seal at 10.0 p.m. on 6 March and to concentrate on the contents from 10.0-10.5 p.m. Concentration was to cease at 10.5 p.m. The agents at 2 Adelaide Road chanted the poem together from 10.0-10.10 p.m. There was mention of the ferocity of tigers and of poking the tiger at the Zoo with an umbrella.

As a result none of the 230 percipients quoted any verse from the poem in question, and no percipient mentioned a tiger. A few percipients quoted poems in which "night" was mentioned, but there were no close approximations to the idea of a fire in the darkness. Perhaps the percipient who got nearest to the "spirit" of the poem was no. 232, who is cited in connection with the 27 objects (p. 235, above). His verse ran:

"God of the granite and the rose,  
Soul of the sparrow and the bee,  
Thy mighty tide of being flows  
Through all thy creatures back to thee."

We may note a few poems quoted by percipients in order of popularity. Undoubtedly the most popular poem was Longfellow's "Psalm of Life," from which no less than seven persons quoted a verse: "Tell me not in mournful numbers . . ." nos. 152 (Letchworth) and 380 (Palmer's Green); "Life is real, life is earnest . . ." nos. 321 (Basingstoke) and 472 (Dudley); "Lives of great men all remind us," nos. 454 (Ireland) and 486 (Herefordshire); "Let us then be up and doing," no. 249 (Oxford).

Next there were six quotations from Gray's "Elegy," four quotations from Wordsworth's "Intimations of Immortality"—these being mostly the lines beginning "Our birth is but a sleep and a forgetting," three from the "Ancient Mariner," etc. Two percipients (163 and 628) cited the not very well known verse from Fitzgerald's "Omar": "Lo! some we loved, the loveliest and the best . . ."

*Coincidence in time for the "object" impressions.* Taking the dates 10, 17, 24, 31 October, 7, 14 November, and 19 December, on each of which more than one concrete object was shown, we find from the Object Tables XXXIII that there were altogether 501 distinct successful hits. Care has been taken to count each successful hit only once, as some hits are enumerated in the tables under more than one heading. On evenings like 10 October, where three objects were shown, we might expect by chance that the successful hits would be about equally distributed among the three intervals of ten minutes, so that if on such an evening there were  $x$  successful hits in all, the expected number for each interval would be  $x/3$ . Similarly, on an evening like 7 November, on which two concrete objects only were exhibited, the chance expectation for each of the two ten minute intervals would be  $y/2$  where  $y$  is the total of successful hits on this evening.

We are thus able to calculate what number of the 501 successful hits would on a chance basis happen to be guessed in the same ten minute interval as that in which the corresponding object was shown to the agents. This chance expectation of hits which are neither "post" nor "previsional" is found to be 209.2. The actual number of such hits is 210. Thus the agreement is unexpectedly close and furnishes us with one more argument in favour of the view that the successful hits have no special relation to the particular time interval in which the corresponding objects were shown. (The details of the counts have been preserved and can be seen by anyone wishing to verify them.)

### *B. Geometrical Figures*

The figures the agents attempted to transmit in the six geometrical experiments are shown in Table VIII (Analysis of geometrical transmission experiments). The notice sent out to percipients is given on p. 215, above. When a percipient drew more than one distinct drawing, the first in order from left to right or from top to bottom was chosen for the purpose of scoring and of classification.<sup>1</sup> The number of geometrical impressions sent in was as a rule considerably less than the weekly total of percipients, since a certain number of percipients seemed to shirk this type of experiment. No additional agents were used in any of the geometrical tests. The figure chosen for transmission each week was deliberately selected by myself and drawn by me in the presence of the other agents.

<sup>1</sup> When, however, a percipient underlined one of two drawings as being a stronger impression than the other, the stronger impression was chosen. Where a percipient made more than two distinct drawings his impressions were ignored.

*Classification of the drawings.* The sketches were divided into two main classes: (a) "straight line" figures, and (b) curved figures. The class (a) comprised triangles, pyramids, prisms, quadrilaterals, polygons and all other figures formed entirely or almost entirely of straight lines. Class (b) comprised complete circles, ovals, arcs of circles, spheres, cones, cylinders, crescents and other figures composed almost entirely or entirely of curved lines. In the case of a "mixed" drawing, in which straight lines and curves equally predominate, one-half was counted to belong to class (a) and one-half to class (b). Drawings of this type are, for example, a triangle inscribed in a circle, a circle (not excessively minute) inscribed in a triangle, a sector of a circle or a quadrilateral or polygon inscribed in a circle (or *vice versa*), a segment of a circle, a bounded semicircle, and so on.

These two classes (a) and (b) were then sub-divided into smaller classes such as quadrilaterals, complete circles, triangles and pyramids, ovals, sectors, polygons, cones, cylinders, curved impressions unclassified, linear impressions not classified, and so on.<sup>1</sup> In Tables VII and VIII we are concerned with only three of these sub-classes, viz.: (i) triangles and pyramids, (ii) complete circles, (iii) pentagons and higher polygons such as hexagons, octagons, etc. Class (ii) includes single circles, concentric circles, two or more intersecting or non-intersecting complete circles, but excludes sectors, semicircles, etc. Class (i) includes single triangles, tetrahedrons, a pair of triangles base to base or vertex to vertex, Maltese crosses formed of four triangles, and also figures formed by a pair of distinct interlacing triangles or of one triangle inscribed in another. Pyramids with a square or polygonal base counted for only one-half in the triangular class and one-half in the quadrilateral or polygon class. Drawings of a triangle inscribed in a circle counted for one-half in the triangular class and one-half in the complete circle class. A similar partition was used in the case of a polygon inscribed in a circle or a circle inscribed in a polygon.

Table VII gives the numbers of impressions in each class under the appropriate headings in each of the five "control" experiments, where no drawing was looked at by the agents. From the totals the average frequency for each class is found. Thus the frequency for the "triangular" class (i) is found by dividing the total number (259.5) of triangles and pyramids by the total number (1161) of distinct drawings. The result is  $259.5/1161 = .224$ , and so on for the remaining classes (Table VII). These frequencies are then used to calculate the *expected* numbers of each class in the other six geometrical tests. The standard deviations are also calculated on the

<sup>1</sup> The actual tables of classification for each week may be inspected at the S.P.R. Rooms.

assumption of a binomial distribution. In Table VIII these *expected* numbers are compared with the corresponding "actual" numbers.

It will be seen that with one single exception (28 November, complete circles and triangular classes) the actual deviations are all numerically less than twice the corresponding standard deviations. The deviation on 28 November just exceeds  $2 \times \text{S.D.}$  in the complete circle class, but since this deviation is *negative* it provides no evidence for supernormal perception. It appears, in fact, that the frequencies found from the control experiments apply extremely well to the results of the remaining experiments, and there is no evidence that when the agents have thought of a triangle, for instance, the numbers in the triangular class show any significant increase.

Table IX gives the numbers of times which the *actual* drawings shown in the six experiments were guessed on each date. Here again there is no evidence that the agents have augmented these numbers on certain weeks by their concentration.

TABLE VII  
ANALYSIS OF GEOMETRICAL CONTROL EXPERIMENTS

Date.	Number of Triangular Drawings and Pyramids.	Number of Complete Circles.	Number of Pentagons and Higher Polygons.	Total Number of Straight Line Impressions.	Total Number of Distinct Drawings.
7 Nov.	60.5	47.5	20.0	167.5	261
12 Dec.	38.0	37.5	12.0	128.5	212
19 Dec.	50.0	55.0	10.0	135.0	238
9 Jan.	60.5	40.5	13.0	147.0	243
6 Feb.	50.5	35.5	11.0	138.0	207
Totals	259.5	216.0	66.0	716.0	1161
Frequencies	.224	.168	.0568	.617	—

[These frequencies are used to calculate the expected values for the same classes of drawings in Table VIII.]

TABLE VIII  
ANALYSIS OF GEOMETRICAL TRANSMISSION EXPERIMENTS

Date.	Class of Impression.	Actual Numbers.	Expected Numbers.	Deviations.	Standard Deviations.	Object of Transmission.
24 Oct.	Triangular - Complete circle Polygonal - Straight line figure -	82.0 70.0 24.0 214.0	72.8 60.4 18.5 200.5	+ 9.2 + 9.6 + 5.5 + 13.5	±7.5 ±7.0 ±4.2 ±8.8	Maltese cross formed by four equilateral triangles.
31 Oct.	Triangular - Complete circle Polygonal - Straight line figure -	70.0 66.0 12.0 189.0	66.3 55.0 16.8 182.6	+ 3.7 + 11.0 - 4.8 + 6.4	±7.2 ±6.7 ±4.0 ±8.4	Three sets of two concentric circles in triangular formation and touching in pairs externally.
14 Nov.	Triangular - Complete circle Polygonal - Straight line figure -	44.0 36.0 14.0 136.5	48.4 40.2 12.3 133.3	- 4.4 - 4.2 + 1.7 + 3.2	±6.1 ±5.7 ±3.4 ±7.1	Regular pentagon.
21 Nov.	Triangular - Complete circle Polygonal - Straight line figure -	49.5 45.0 20.0 166.5	57.8 48.0 14.6 159.2	- 8.3 - 3.0 + 5.4 + 7.3	±6.7 ±6.2 ±3.7 ±7.8	Equilateral triangle.
28 Nov.	<b>Triangular -</b> <b>Complete circle</b> Polygonal - Straight line figure -	35.0 28.5 13.5 135.0	48.2 40.0 12.2 132.6	-13.2 -11.5 + 1.3 + 2.4	±6.1 ±5.7 ±3.4 ±7.1	Three concentric circles.
16 Jan.	Triangular - Complete circle Polygonal - Straight line figure -	53.0 35.0 13.0 158.5	52.4 43.5 13.3 144.4	+ 0.6 - 8.5 - 0.3 + 14.1	±6.4 ±6.0 ±3.5 ±7.5	Black equilateral triangle inscribed in a circle.

TABLE IX

*Explanation:* Under, for example, the heading Pentagon we find for each date the number of percipients who drew a pentagon on that date. A *pentagon* was actually shown to the agents on 14 November.

Date.	Total Number of Distinct Drawings.	Drawing of Maltese Cross or mention of same.	Triangle in a Circle.	Pentagon.	Two or more Concentric Circles.	Cone (b) (iii).	Three Circles in Triangular Formation.
24 Oct.	325	3 (c)	16 (a)	5	9	4	0
31 Oct.	296	3	3	0	8	3	1 (c)
7 Nov.	261	4	1	4	9	6 (c)	0
14 Nov.	216	3	4	6 (c)	6	6	1
21 Nov.	258	1	2	6	6	5	0
28 Nov.	215	3	3	5	4 (c)	6	2
12 Dec.	212	1	4	1	6	8	0
19 Dec.	238	0	2	2	7	7	2
9 Jan.	243	5	6	5	2	7	0
16 Jan.	234	0	3 (c)	2	4	7	1
6 Feb.	207	4	1	3	5	3	1
Totals	2705	27	45	39	66	62	8

(a) This seems to be clearly an abnormal result, and we might suspect the influence of some common suggestion in this particular week.

(b) Cf. Experiment 7 Nov. (i).

(c) The values in heavy type correspond to the date on which the object at the head of the column was shown to the agents.

### C. The Three Figure Number Experiments

There were eight attempts to transmit a three figure number and six control experiments. The notices sent out to percipients on each occasion are to be found on p. 215, above.

On three occasions, viz. 9 January (ii), 16 January (ii) and 30 January (ii), between 20 and 30 additional agents were employed to assist in the transmission.

The instructions sent to these agents is to be found on pp. 293-4, 296 below. It will be seen by a reference to the chart that on 9 January and 16 January the additional agents had finished their concentration before the percipients began to record their impressions of three figure numbers. This was arranged to test the "sub-conscious" or "latent" transmission theory.

*The selection of the numbers.* On 21 November and 9 and 23 January the numbers were chosen by myself in private by drawing

from a bag a piece of cardboard on which was inscribed one of the nine digits. The digits were replaced in the bag together with another piece of cardboard bearing the figure 0, and the operation of drawing was repeated twice. The three figure number was thus constructed.

For the five remaining experiments I decided to employ numbers in which all three digits were the same, and subject to this restriction and the further restriction that no such number should be used twice on different dates, the method of selection was by drawing from a bag. The number was usually selected some days before the date of the experiment in which it was required, and was drawn by me in black or blue crayon on several postcards, one of which was handed to each agent. In cases where the percipient made an extra guess,<sup>1</sup> the first in order of recording was chosen for the purposes of scoring and analysis except when the percipient had underlined one impression as being stronger than the other, in which case the impression underlined was chosen.

*Explanation of Tables X to XIII.* Table X gives the individual percipients who guessed the number correctly and also those who guessed the first two digits correctly. It will be seen that even with the "popular" numbers 555, 777, etc. the amount of success is negligible. Moreover, no individual percipient guessed more than a single one of the eight numbers correctly.

TABLE X  
INDIVIDUAL RESULTS OF NUMBER TESTS

Date.	No. shown.	Percipients with first two or more Digits correct.	
		Absolutely correct.	First two Digits only correct.
21 Nov.	424	—	Nos. 264, 636, 624, 152
28 Nov.	444	$x^2$	No. 355
5 Dec.	888	—	—
9 Jan.	581	—	Nos. 383 and 270
16 Jan.	555	No. 519	Nos. 523 and 311
23 Jan.	491	No. 382	Nos. 691 and 265
30 Jan.	222	No. 661	Nos. 186 and 15
6 Feb.	777	No. 394	No. 523

<sup>1</sup> An identical procedure was adopted in the experiment with capital letters and playing cards. When, however, *more than two guesses* were given the percipient's impressions were *ignored as being probably valueless*.

<sup>2</sup> This percipient's postcard could not be identified.



TABLE XI

NO. OF CASES IN WHICH THE FIRST TWO DIGITS ARE THE SPECIAL COMBINATIONS SHOWN

Date.	Total No. Guesses.	No. shown to Agents.	42	44	88	58	55	49	22	77
21 Nov.	336	<b>424</b>	<b>4</b>	<b>4</b>	<b>6</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>1</b>
28 Nov.	283	<b>444</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>7</b>
5 Dec.	262	<b>888</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>2</b>
9 Jan.	236	<b>581</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>5</b>
16 Jan.	235	<b>555</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>1</b>
23 Jan.	235	<b>491</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>5</b>	<b>4</b>
30 Jan.	231	<b>222</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>3</b>	<b>1</b>
6 Feb.	258	<b>777</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>2</b>
13 Feb.	250	Control	<b>4</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>4</b>
20 Feb.	232	Control	<b>2</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>5</b>
27 Feb.	228	Control	<b>4</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>
6 Mar.	235	Control	<b>4</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>1</b>
20 Mar.	195	Control	<b>6</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>
27 Mar.	231	Control	<b>1</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>5</b>
Total	3447	Totals	47	22	22	37	36	29	25	42

NOTE.—In each column we read opposite any date the number of guesses on that date which had for their first two digits the special combination given at the head of the column. The numbers in heavy type should be compared with the remaining numbers in the same column. Cases of three digits identical are included here.

TABLE XII  
OCCURRENCE OF NUMBERS WITH THREE REPEATED DIGITS

Date.	Total No. of Guesses.	No. shown	111	222	333	444	555	666	777	888	999
21 Nov.	336	424	6	—	6	1	2	2	1	3	2
28 Nov.	283	444	2	1	8	1	—	6	5	—	1
5 Dec.	262	888	3	—	8	1	1	3	2	—	4
9 Jan.	236	581	1	—	6	—	1	3	4	—	1
16 Jan.	235	555	2	—	2	—	1	3	—	1	1
23 Jan.	235	491	1	2	3	1	2	1	3	1	2
30 Jan.	231	222	3	—	3	2	1	—	—	—	5
6 Feb.	258	777	5	—	4	1	2	—	—	3	4
13 Feb.	250	Control	3	1	2	—	2	1	1	1	—
20 Feb.	232	Control	1	1	4	—	1	1	4	2	3
27 Feb.	228	Control	—	1	1	2	2	1	—	1	2
6 Mar.	235	Control	3	—	2	—	3	2	1	2	—
20 Mar.	195	Control	—	1	5	1	1	2	1	—	2
27 Mar.	231	Control	1	1	2	—	1	2	2	—	3
Total	3447										

The values in heavy type should be compared with the remaining values in the same vertical column under the headings 222, 444, 555, 777, 888 respectively. Under heading 222, for instance, we find the numbers of times 222 was guessed on each of the fourteen weeks. Looking opposite 30 January we find that on this date 222 was not guessed at all.

**TABLE XIII**  
**SPECIAL IMPRESSIONS OF ISOLATED DIGITS OR DIGITS SPECIALLY STRESSED**

Date.	Total No. of Guesses.	No. shown.	Digit stressed.										Roman Numerals.
			1	2	3	4	4	5	6	7	8	9	
21 Nov.	336	424	—	—	1	4	<b>9</b>	1	—	2	1	—	—
28 Nov.	283	444	—	—	1	1	<b>1</b>	—	—	3	1	1	—
5 Dec.	262	888	—	1	—	—	7	—	1	—	<b>5</b>	1	5
9 Jan.	236	581	—	1	1	—	3	8	—	4	3	1	—
16 Jan.	235	555	1	—	2	2	—	<b>3</b>	1	1	2	—	—
23 Jan.	235	491	—	—	3	—	4	1	—	—	—	—	2
30 Jan.	231	222	1	—	—	—	—	1	—	4	1	—	—
6 Feb.	258	777	—	—	1	2	—	1	—	2	1	—	—
13 Feb.	250	Control	—	—	1	0	1	—	1	2	1	—	2
20 Feb.	232	Control	—	—	1	1	1	2	3	—	—	—	—
27 Feb.	228	Control	—	—	1	1	1	1	2	1	1	—	—
6 Mar.	235	Control	—	1	1	1	1	1	1	—	—	—	2
20 Mar.	195	Control	—	—	—	—	2	—	—	—	—	—	—
27 Mar.	231	Control	—	—	1	1	—	1	—	2	1	—	—
Total	3447												

NOTE.—In each column we read opposite any date the number of percipients who on that date specially underlined or emphasised the particular digit given at the head of the column.

In Table XI <sup>1</sup> we investigate whether there is any *general* tendency to get the first two digits correct. If the numbers in heavy type in this table are compared with the other numbers in the *same column* it will be obvious that there is absolutely no significant superiority whatever in any case.

Table XII investigates the amount of *general* success obtained with the numbers consisting of three repeated digits. Here again if the numbers in heavy type are compared with those in the same column as the one in heavy type it will be seen that there is obviously no superiority whatever on any occasion.

Table XIII deals with those single digits specially stressed by percipients. It often happened that a percipient guessed a three

<sup>1</sup> In all the tables, by the total number of guesses each week is meant the number of *complete* three figure numbers, one of course being recorded for each percipient. A considerable proportion of the guesses each week, however, were incomplete.

figure number and underlined say the first digit. In other cases a percipient would say, "I see the figure 5 very strongly," or "I see hosts of 8's," etc. Table XIII has been constructed to discover if there is any correlation between these "specially strong" digital impressions and the numbers shown to the agents. On 21 and 28 November the digit 4 in the numbers 444 and 424 was exhibited to the agents as shown here: 4. Certain percipients wrote 4 instead of 4. In the case of 4, if we look down the column under this heading we find a certain superiority on 21 November, but none whatever on 28 November. Moreover, on 5 December the number of percipients who wrote 4 is only slightly inferior to the number on 21 November. Hence there does not appear to be much in the matter.

The only other case of a superiority is in the stressed digit "8" on 5 December and 9 January. But here again it is doubtful if the superiority is large enough to warrant serious attention. In the case of digits 1, 2, 7, there is no superiority.

*Explanation of Tables XIV to XXI.* We have now to investigate whether there is any general tendency to get the digit correct in the hundreds place alone, or in the tens place alone, or in the units place alone, or in the case of numbers like 777 in all three places. To solve this problem I have constructed first 29 tables, of which it will be sufficient to give the four for the date 16 January,<sup>1</sup> on which day the number shown to the agents was 555.

We can confine our attention to 16 January, *hundreds* place (Table XIV). The second column under the heading  $N_s$  gives the total number of times in which each of the digits 1, 2, 3 ... 9 occurs in the hundreds place in all the six control experiments *pooled together*.  $N=1371$  is the sum of these numbers. In the third column is found the value of  $\frac{N_s}{N}$  for each digit, this representing, therefore, the frequency ratio of each digit in the control series. Column 7 under the heading  $N_s^1$  gives the actual number of times in which each of the digits 1, 2, ... 9 occurs in the hundreds place for the guesses obtained on the date 16 January. In column 6 is to be found the value of  $\frac{N_s^1}{N^1}$  for each digit,  $N^1$  being the total

number of guesses on 16 January = 235. The values of  $\frac{N_s^1}{N^1}$  are therefore the actual frequency ratios for the digits 1, 2, 3, ... 9 on 16 January. Columns 4 and 5 are merely convenient steps in the calculation of the numbers in the last column under the heading

$$\frac{\left[\frac{N_s}{N} - \frac{N_s^1}{N^1}\right]^2 NN^1}{N_s + N_s^1} = Y_s^2$$

<sup>1</sup> The other twenty-five tables may be inspected at the S.P.R. Rooms.

SPECIMEN TABLES SHOWING THE EVALUATION OF  $Y_s^2$ 

TABLE XIV

16 JANUARY. HUNDREDS PLACE. [Number shown=555.]

Digit.	$N_s$ [Control] (combined).	Control Frequencies.	$\frac{N_s^1 \cdot N_s^1}{N^1}$	$N_s + N_s^1$	Frequencies for 16 Jan.	16 Jan. $N_s^1$ .	$\frac{N_s^1 \cdot N_s^1}{N_s + N_s^1}$
		$\frac{N_s}{N}$			$\frac{N_s^1}{N^1}$		
$s=1$	190	·139	+·016	219	·123	29	·38
$s=2$	148	·108	+·019	169	·089	21	·69
$s=3$	246	·179	+·005	287	·174	41	·03
$s=4$	139	·101	+·003	162	·098	23	·02
$s=5$	150	·109	+·020	171	·089	21	·75
$s=6$	111	·081	-·017	134	·098	23	·69
$s=7$	184	·134	-·040	225	·174	41	2·29
$s=8$	96	·070	-·002	113	·072	17	·01
$s=9$	107	·078	-·003	126	·081	19	·02
Totals	1371 = $N$	·999 [Check]	+·001 [Check]	1606	·998 [Check]	$N^1 = 235$	$\chi^2 = 4·88$ $P_{\chi^2} = 0·76$

TABLE XV

16 JANUARY. TENS PLACE. [Number shown=555.]

Digit.	$N_s$ [Control] (combined).	Control Frequencies.	$\frac{N_s^1 \cdot N_s^1}{N^1}$	$N_s + N_s^1$	Frequencies for 16 Jan.	16 Jan. $N_s^1$ .	$\frac{N_s^1 \cdot N_s^1}{N_s + N_s^1}$
		$\frac{N_s}{N}$			$\frac{N_s^1}{N^1}$		
1	122	·089	+·017	139	·072	17	·67
2	167	·122	+·007	194	·115	27	·08
3	174	·127	+·029	197	·098	23	1·38
4	124	·090	-·008	147	·098	23	·14
5	131	·096	+·011	151	·085	20	·26
6	137	·100	+·002	160	·098	23	·01
7	147	·107	+·005	171	·102	24	·05
8	123	·090	-·004	145	·094	22	·04
9	109	·079	-·061	142	·140	33	8·44
0	137	·100	+·002	160	·098	23	·01
Totals	[ $N = 1371$ ]	1·000 [Check]	+·000 [Check]	1606	1·000 [Check]	[ $N^1 = 235$ ]	$\chi^2 = 11·08$ $P_{\chi^2} = 0·27$

TABLE XVI

16 JANUARY. UNITS PLACE. [Number shown=555.]

Digit.	$N_s$ [Control] (combined).	Control Frequencies.	$\frac{N_s^1}{N} - \frac{N_s^1}{N^1}$	Frequencies for 16 Jan.	$N_s + N_s^1$	16 Jan. $N_s^1$ .	$\left[ \frac{N_s^1}{N} - \frac{N_s^1}{N^1} \right] \frac{N N^1}{N_s + N_s^1}$
		$\frac{N_s}{N}$		$\frac{N_s^1}{N^1}$			
1	149	·109	-·014	·123	178	29	·35
2	103	·075	-·031	·106	128	25	2·42
3	169	·123	+·025	·098	192	23	1·05
4	112	·082	+·005	·077	130	18	·06
5	152	·111	+·026	·085	172	20	1·27
6	138	·101	+·016	·085	158	20	·52
7	179	·131	+·012	·119	207	28	·22
8	114	·083	+·002	·081	133	19	·01
9	154	·112	-·007	·119	182	28	·09
0	101	·074	-·032	·106	126	25	2·62
Totals	[N = 1371]	1·001 [Check]	+·002 [Check]	·999 [Check]	1606	[N <sup>1</sup> = 235]	$\chi^2 = 8·61$ $P_{\chi^2} = 0·47$

TABLE XVII

16 JANUARY. ALL PLACES. [Number shown=555.]

Digit.	$N_s$ [Control] (combined).	Control Frequencies.	$\frac{N_s^1}{N} - \frac{N_s^1}{N^1}$	Frequencies for 16 Jan.	$N_s + N_s^1$	16 Jan. $N_s^1$ .	$\left[ \frac{N_s^1}{N} - \frac{N_s^1}{N^1} \right] \frac{N N^1}{N_s + N_s^1}$
		$\frac{N_s}{N}$		$\frac{N_s^1}{N^1}$			
1	461	·112	+·006	·106	536	75	0·19
2	418	·102	-·002	·104	491	73	0·02
3	589	·143	+·020	·123	676	87	1·72
4	375	·091	+·000	·091	439	64	0·00
5	433	·105	+·018	·087	494	61	1·90
6	386	·094	+·000	·094	452	66	0·00
7	510	·124	-·008	·132	603	93	0·31
8	333	·081	-·001	·082	391	58	0·01
9	370	·090	-·023	·113	450	80	3·41
0	238	·058	-·010	·068	286	48	1·01
Totals	[N = 4113]	1·000 [Check]	+·002	1·000 [Check]	4818 [Check]	[N <sup>1</sup> = 705]	$\chi^2 = 8·57$ $P_{\chi^2} = 0·47$

The square root  $Y_s$  of this quantity can be shown to represent the ratio of the difference of the two frequency ratios  $\frac{N_s}{N}$  and  $\frac{N_s^1}{N^1}$  to the standard error of this difference.<sup>1</sup>

Now if in the majority of experiments the value of  $Y_s^2$  considerably exceeded 4 for the particular digit  $s$  in the hundreds place that was being visualised by the agents, we should have evidence that the agents' concentration was affecting the distribution of this digit. In the example chosen 16 January (hundreds place) it is clear that for  $s=5$  (number 555) the value of  $Y_s^2$  is .75, which is very much less than 4.

The sum of the numbers in the last column, that is  $\sum_{s=1}^{s=9} Y_s^2$ , is called  $\chi^2$ , and in the example considered (16 January)  $\chi^2=4.88$ .

The magnitude of  $\chi^2$  determines the degree of "closeness of fit" between the actual distribution (16 January) and the "control" series.

In the particular case considered by reference to Karl Pearson's tables for statisticians we find for nine groups corresponding to  $\chi^2=4.88$  a value  $P_{\chi^2}=.76$ . This must be interpreted to mean that by chance alone a worse fit than the present one (16 January) would occur on the average 76 times out of every 100 trials. We conclude then that the distribution of digits in the hundreds place on 16 January agrees pretty well with the distribution in the control series and that the fit is a good one.

In the long run the value of  $P_{\chi^2}$  should as often exceed .5 as be below .5.

The values of  $Y_s^2$  in each of the eight experiments for the hundreds place digit have all been tabulated in Table XVIII, and the value corresponding to the digit concentrated upon by the agents on each date is in heavy type. Not one of these stressed values of  $Y_s^2$  even approaches 4, the largest being 1.50.

The last two rows of Table XVIII give the values of  $\chi^2$  and  $P_{\chi^2}$  respectively. It is seen that the best fit  $P_{\chi^2}=.93$  is on 23 January and the worst  $P_{\chi^2}=.02$  on 30 January. Five of the eight values exceed .5 and three are less than .5. In the whole table there are 64 values of  $Y_s^2$ , and by chance alone about 5% of these might be expected to exceed 4, i.e. about three values. Actually there are two such values, 5.67 and 9.81. Neither of these, however, correspond to a digit selected by the agents.

<sup>1</sup> For a proof of this statement consult Appendix II.

TABLE XVIII

VALUES OF  $Y_s^2 = \frac{\left[\frac{N_s}{N} - \frac{N_s^1}{N^1}\right]^2 NN^1}{N_s + N_s^1}$  and of  $\chi^2$  and  $P_{\chi^2}$  for HUNDREDS  
PLACE

Date.	21 Nov.	28 Nov.	5 Dec.	9 Jan.	16 Jan.	23 Jan.	30 Jan.	6 Feb.
Number shown -	424	444	888	581	555	491	222	777
Total number of guesses -	336	283	262	236	235	235	231	258
Values of $Y_s^2$	—	—	—	—	—	—	—	—
Digit = 1 -	·03	3·46	2·15	·00	·38	·59	·24	1·88
2 -	·43	·76	·05	·23	·69	·22	·31	·46
3 -	3·16	1·39	·64	·16	·03	·09	9·81	1·06
4 -	·58	·33	·61	·82	·02	·38	·28	·03
5 -	1·75	·43	·92	1·50	·75	·07	1·37	·24
6 -	·00	·34	1·26	1·49	·69	·20	·47	1·48
7 -	2·30	·03	·11	1·00	2·29	·55	5·67	·32
8 -	1·32	·00	·60	·34	·01	·62	·23	·05
9 -	·60	1·53	·07	·52	·02	·30	·00	·00
Values of $\chi^2$	10·17	8·27	6·41	6·06	4·88	3·02	18·38	5·52
Values of $P_{\chi^2}$	·25	·41	·60	·65	·76	·93	·02	·70

NOTE.—If the sum of the values of  $\chi^2$  in the last row but one is denoted by  $\chi_1^2$  it is useful to note that  $\sqrt{2\chi_1^2}$  is distributed normally about a mean  $\sqrt{2n} - 1$  with unit standard deviation where  $n$  is the total number of degrees of freedom. In the above table  $\chi_1^2 = 62·71n$  (supposed  $> 30$ ) is equal to  $8[9-1] = 64$ . Hence  $\sqrt{2\chi_1^2} - \sqrt{2n} - 1 = -·07$  which is less than the standard deviation and indicates a good agreement between the control series and the 8 experiments as a whole. (See *Statistical Methods for Research Workers*, p. 78, by R. A. Fisher.)



TABLE XIX

VALUES OF  $Y_s^2 = \frac{\left[\frac{N_s}{N} - \frac{N_s^1}{N^1}\right]^2 NN^1}{N_s + N_s^1}$  and of  $\chi^2$  and  $P_{\chi^2}$  for TENS PLACE

Date.	21 Nov.	28 Nov.	5 Dec.	9 Jan.	16 Jan.	23 Jan.	30 Jan.	6 Feb.
Number shown -	424	444	888	581	555	491	222	777
Total number of guesses -	336	283	262	236	235	235	231	258
Values of $Y_s^2$	—	—	—	—	—	—	—	—
Digit = 1 -	·43	·04	1·15	1·03	·67	·06	·49	·15
2 -	·02	·50	·03	1·87	·08	·16	·13	1·56
3 -	·10	·58	·45	2·19	1·38	2·39	1·17	·21
4 -	·05	·97	·06	·86	·14	·74	1·53	1·55
5 -	1·06	·16	·00	·02	·26	·48	1·04	·00
6 -	·07	·62	·32	3·60	·01	·46	2·55	·11
7 -	·02	6·96	·24	·38	·05	2·57	·02	·05
8 -	·35	·01	·73	1·24	·04	·06	·02	·05
9 -	·33	·19	·46	8·48	8·44	·88	4·08	·27
0 -	1·12	·15	·00	2·17	·01	·70	·56	·00
Values of $\chi^2$	3·55	10·18	3·44	21·84	11·08	8·50	11·59	3·95
Values of $P_{\chi^2}$ -	·94	·33	·94	·01	·27	·48	·23	·90

NOTE.—For significance the values in heavy type under each date should considerably exceed 4.

In the above table

$$\chi_1^2 = 74.13, \quad n = 8 \quad [10 - 1] = 72$$

whence  $\sqrt{2\chi_1^2} - \sqrt{2n-1} = +.22$ , which again indicates good agreement with theory. (See footnote to Table XVIII.)

TABLE XX

VALUES OF  $Y_s^2 = \frac{\left[\frac{N_s}{N} - \frac{N_s^1}{N^1}\right]^2 NN^1}{N_s + N_s^1}$  and of  $\chi^2$  and  $P_{\chi^2}$  for UNITS  
PLACE

Date.	21 Nov.	28 Nov.	5 Dec.	9 Jan.	16 Jan.	23 Jan.	30 Jan.	6 Feb.
Number shown -	424	444	888	581	555	491	222	777
Total number of guesses -	336	283	262	236	235	235	231	258
Values of $Y_s^2$	—	—	—	—	—	—	—	—
Digit = 1 -	·16	1·77	·01	·05	·35	·09	1·10	·00
2 -	·68	1·19	1·60	·26	2·42	·93	·65	·10
3 -	3·46	·33	1·55	1·42	1·05	·00	1·31	1·23
4 -	·22	·67	1·24	1·36	·06	·12	1·11	·13
5 -	·12	1·49	1·09	·60	1·27	·90	2·03	·02
6 -	·90	·08	·08	·00	·52	·38	2·11	3·49
7 -	·48	2·10	2·28	·73	·22	·63	·10	1·26
8 -	·71	4·38	·21	·30	·01	·30	·48	·01
9 -	·48	1·25	·58	·09	·09	·70	1·63	1·36
0 -	·03	·60	2·36	1·51	2·62	·01	·22	·19
Values of $\chi^2$	7·24	13·86	11·00	6·32	8·61	4·06	10·74	7·79
Values of $P_{\chi^2}$ -	·61	·13	·28	·70	·47	·91	·29	·55

NOTE.—For significance the values in heavy type under each date should considerably exceed 4.

In the above table  $\chi_1^2 = 69·62$ ,  $n = 72$  whence  $\sqrt{2\chi_1^2} - \sqrt{2n-1} = -·16$ , again showing good agreement with theory.

TABLE XXI

VALUES OF  $Y_s^2 = \frac{\left[ \frac{N_s}{N} - \frac{N_s^1}{N^1} \right]^2 NN^1}{N_s + N_s^1}$  and of  $\chi^2$  and  $P_{\chi^2}$  for ALL PLACES

Date	28 Nov.	5 Dec.	16 Jan.	30 Jan.	6 Feb.
Number shown -	444	888	555	222	777
Total number of guesses -	283	262	235	231	258
Values of $Y_s^2$ -	—	—	—	—	—
Digit = 1 -	4.08	.15	.19	.42	.71
2 -	.44	.16	.02	.02	1.10
3 -	.70	.65	1.72	4.37	.02
4 -	.38	.01	.00	.23	.70
5 -	1.54	1.44	1.90	4.27	.15
6 -	.07	.17	.00	2.10	.34
7 -	5.91	.65	.31	1.76	.19
8 -	1.65	.03	.01	.60	.03
9 -	2.63	.07	3.41	3.66	1.02
0 -	.05	.90	1.01	.09	.04
Values of $\chi^2$ -	17.45	4.23	8.57	17.52	4.30
Values of $P_{\chi^2}$ -	.04	.89	.47	.04	.86

NOTE.—For significance the values in heavy type under each date should considerably exceed 4.

Similar tables (XV and XIX and XVI and XX) have been constructed for the digit in the tens and units places. Again, in the tens place table (Table XIX) we find that the greatest of the heavy type values is 1.24, so that none of these approach 4.

Of the 80 entries in the "tens digit" table (XIX), we might expect by chance alone 5% of 80 = 4 values of  $Y_s^2$  to exceed 4. There are actually four such values. Of the values of  $P_{\chi^2}$  there are three exceeding .5 and five less than .5. Three of the fits are extremely close (.90, .94, .94).

In Table XX for the units digit the greatest of the heavy type values of  $Y_s^2$  is 1.27, so that none of them approach 4. In the whole table there is only one value exceeding 4, which is less even than chance would predict. Of the values of  $P_{\chi^2}$  four exceed .5 and four are less than .5.

In Table XXI for all three digits again none of the heavy type values even approach 4 in magnitude. There are four values of  $Y_s^2$  (slightly) exceeding 4 in the whole 50 entries, whereas chance would

predict 2.5 such values. Two values of  $P_x$  exceed .5 and three are less than .5.

To sum up, there is an excellent agreement between the control series and the series in which numbers were actually exhibited to the agents. In no single case is there any evidence that the distribution of digits in any one of the three places has been affected by the concentration of the agents. The experiments in "unconscious" transmission (9 and 16 January) have equally failed.

*The eight number experiments considered as a whole.* We have in all 2076 complete guesses in the eight experiments in which a three-figure number was shown. Using for each week the control frequencies  $N_i/N$  given in the third columns of Tables XIV, XV and XVI, the reader may verify that the total expected numbers of correct guesses in the hundreds, tens, and units place will be 215.3, 208.2 and 201.0 respectively. The numbers actually obtained from Tables XIV, XV, XVI, and the twenty-one unpublished similar tables are found to be 213 (hundreds place), 206 (tens place), and 201 (units place). The reader may with some labour verify that the joint standard deviations for the hundreds, tens and units place are 13.9, 13.7 and 13.4 respectively. The close agreement between the actual and expected numbers in each case is a testimony to the reliability of the control series.

Had there been as many as even thirty cases of telepathy among the 2076 guesses in, say, the hundreds place, we should in all probability have detected it.

*Frequencies of the different digits.* The following frequencies are based upon the whole 14 experiments, i.e. on a total of 3447 guesses.

(a) *Hundreds place.*

Digit	-	-	3	7	1	2, 4	5	6	9	8
Frequency	-	-	.197	.129	.127	.105	.100	.088	.075	.074

(b) *Tens place.*

Digit	-	-	3	2	7	0	9	4	1, 6, 8	5
Frequency	-	-	.123	.116	.115	.097	.094	.093	.091	.090

(c) *Units place.*

Digit	-	-	7	3	9	1	5	6	2, 8	4, 0
Frequency	-	-	.131	.129	.114	.108	.100	.094	.086	.076

(d) *Total frequency of each digit.*

Digit	-	3	7	1	2	5	9	4, 6	8	0
Frequency	-	.150	.125	.109	.102	.097	.094	.091	.084	.058

It will be seen that on the whole 3, 7 are the most popular digits and 4, 6, 8 the least popular. In the *tens* place there is a tendency to *equalisation* of the different frequencies and a rise in the popularity

of two, perhaps owing to an unconscious association with the idea of "second digit." The great popularity of 3 may be in part due to the wording of the instructions to the percipients to record impressions of a *three* figure number. The low total frequency of 0 is of course due to the fact that it cannot occur in the hundreds place.

*Study of mental contagion among percipients.* In Part I (p. 185, above) of my report I gave several examples of pairs of percipients who recorded identical or very similar impressions at approximately the same time. Coincidences of this kind relating to material objects have of course continued throughout the 1928-1929 series, but curiously few of these are of any special complexity, and on the whole the coincidences are less interesting than in the preliminary experiments. It occurred to me that the three figure number experiments might provide a means of testing this theory of mental contagion.

The problem was as follows: Given  $r$  persons who each guess a three figure number, how many of these 900 numbers (100-999 inclusive) would one expect to be not guessed at all, guessed only once, twice, three times, etc.? Mental contagion between pairs of percipients would presumably increase the number of three figure numbers guessed twice or more often. Two things therefore were required. First a formula for calculating the expected numbers of each class on a chance basis and next a criterion for testing significance of deviations from the expected numbers. Dr R. A. Fisher, F.R.S., has very kindly supplied me with a solution to both these problems, and suggests that as his method may prove useful in similar investigations, it should be printed as an appendix to the present report.

If there are  $r$  percipients and  $m=r/900$ , Dr Fisher's formula<sup>1</sup> gives the expected number of numbers guessed

$$\begin{aligned} 0 \text{ times} &= 900 \times e^{-m} \\ 1 \text{ ,,} &= 900 \times e^{-m} \times m \\ 2 \text{ ,,} &= 900 \times e^{-m} \frac{m^2}{1 \times 2} \\ 3 \text{ ,,} &= 900 \times e^{-m} \frac{m^3}{1 \times 2 \times 3} \\ &\dots \dots \dots \\ s \text{ times} &= \frac{900 \times e^{-m} \cdot m^s}{1 \times 2 \times 3 \dots s} \end{aligned}$$

and so on ( $e$  as usual is the base of Napierian logarithms).

This formula was first applied to the total 3447 guesses in the 14 experiments, so that  $m = \frac{3447}{900}$  with unexpected results shown by the following table.

<sup>1</sup> For the demonstration of this formula see Appendix I.

TABLE XXII

Times guessed.	Expected Numbers.	Observed Numbers.
0	19.35	98
1	74.33	127
2	142.74	145
3	182.70	153
4	175.34	101
5	134.57	79
6	86.05	63
7	47.15	46
8	22.60	24
9	9.62	16
10	3.69	13
Exceeding 10 times	- 1.86	35
Total	- 900.00	900

The above table shows that not only is there a small class of numbers which are favoured by the percipients, but there is also another class which is avoided. In fact the differences between the expected numbers and the actual numbers counted in the experiment for "0 times guessed" and "1 time guessed" are far too great to be mere chance variations.

TABLE XXIII

In order of popularity the most highly favoured numbers are the following :

Number.	No. of times guessed in the Whole Series [14 Experiments].
333	56
123	34
111	31
999	30
666	27
777	25
555 and 321	20 each
365 and 369	19 each
100 and 357	18 each
237, 371, 567	16 each

It will be seen that the most popular numbers are numbers with three repeated digits and certain numbers whose digits are in arithmetical progression; 365 of course represents the number of days in the year.

Of the 98 numbers not guessed at all by the percipients, there are 58 numbers which have two digits the same and the third digit different—*e.g.* 886, 933, 808. The chance expectation is about 26.5. This feature therefore would appear to be a characteristic of the numbers avoided.

Only 3 of the 98 avoided numbers commence with the digit 3, whereas 21 commence with 8 and 19 with 9.

Owing to the considerable divergence of the expected numbers from the actual numbers in Table XXII, it does not seem possible to utilise Dr Fisher's formula to investigate the question of mental contagion among the percipients. In Table XXIV, however, I have calculated for 13 out of the 14 weeks the expected numbers of three figure numbers which are guessed 0 times, 1 time, 2 times, etc. (in the line opposite E) and have set under these the actual observed numbers (in the line opposite A). It will be seen that the number of numbers guessed *twice* generally agrees very closely with the expected number and seldom seriously exceeds it. This is a point which tells against the existence of mental contagion between any considerable number of pairs of percipients.

Taking a group of percipients who have all made the same number of guesses (say 12) of three figure numbers I have examined whether there is any tendency for certain individuals to be associated in more than the average number of coincidences with the other percipients. For all the groups I have examined (14, 13, 12, 11, 10 guesses respectively) I find no such tendency on the part of any particular individuals.

TABLE XXIV  
NUMBER COINCIDENCES

This table gives for each date the number of three figure numbers lying between 100 and 999 which were guessed 0 times, once, twice, three times, etc., together with the chance expectations.

Date.		Guessed 0 times.	1 time.	2 times.	3 times.	More than 3 times.	Total.
28 Nov.	E <sup>1</sup>	657.5	206.5	32.4	3.4	0.2	900
	A <sup>2</sup>	683	175	30	7	5	900
5 Dec.	E	672.8	195.8	28.4	2.8	0.2	900
	A	693	169	27	9	2	900
9 Jan.	E	692.4	181.4	23.8	2.0	0.4	900
	A	703	170	20	4	3	900
16 Jan.	E	693.4	181.0	23.5	2.0	0.1	900
	A	701	168	26	5	0	900
23 Jan.	E	693.4	181.0	23.5	2.0	0.1	900
	A	703	166	24	7	0	900
30 Jan.	E	696.5	179.0	22.8	1.6	0.1	900
	A	713	154	26	4	3	900
6 Feb.	E	675.8	193.9	27.7	2.5	0.1	900
	A	695	166	30	5	4	900
13 Feb.	E	681.7	189.5	26.3	2.4	0.1	900
	A	699	159	36	5	1	900
20 Feb.	E	695.9	179.5	22.9	1.6	0.1	900
	A	709	158	28	2	3	900
27 Feb.	E	698.9	176.8	22.3	1.8	0.2	900
	A	709	158	29	4	0	900
6 Mar.	E	693.4	181.0	23.5	2.0	0.1	900
	A	708	157	28	6	1	900
20 Mar.	E	724.4	157.2	17.0	1.2	0.2	900
	A	738	137	21	2	2	900
27 Mar.	E	696.5	179.0	22.8	1.6	0.1	900
	A	716	147	27	10	0	900

<sup>1</sup> E = Expected number according to Dr Fisher's formula.

<sup>2</sup> A = Actual number obtained in the particular experiment under each date.



*Other investigations in connection with mental contagion.* (a) I have also constructed tables to examine whether there is any tendency for pairs of percipients who guess the same three figure number on a particular week to coincide in their capital letter or playing card guesses on the same evening. Such cases are extremely rare, but they occasionally occur. Certainly they are not sufficiently frequent to suggest anything beyond chance coincidence.

*Example :*

Date : 27 February. Percipient : no. 337. Percipient : no. 518. Three figure number : 428. Capital letter : H.

A comparison of the records of percipients 337 and 518 reveals little evidence of mental contagion on other evenings on which both took part.

In the following example there is not only coincidence in the three figure number and capital letter experiments, but also *approximate* coincidence in the case of the playing card.

Date : 27 February. Percipient : no. 133. Three figure number : 355. Capital letter : G. Playing card : 6 of Clubs.

Date : 27 February. Percipient : no. 208 (automatic writer). Three figure number : 355. Capital letter : G. Playing card : 6 of Spades.

Here again though there are slight minor coincidences between nos. 133 and 208 on other dates, there is no convincing evidence that these percipients were in telepathic communication.

(b) Tables have also been drawn up to determine whether there was any tendency for the additional agents who concentrated on the same object for the first five or ten minutes to be put into mental rapport during the second and third ten minutes when they acted as percipients. One hundred and five of the 579 percipients acted as additional agents between 5 December 1928 and 27 March 1929, and the average number of transmissions done by each agent was about four, although certain persons did as many as eight or nine transmissions. From these tables made out for each week I find no serious evidence of mental contagion, either "telepathic" or "suggestive," among the agents with regard to objects, geometrical drawings, capital letters, three figure numbers or playing cards. These tables can be seen by anyone wishing to consult them.

(c) As regards the "object" guesses, there were of course numerous cases each week of two or more percipients guessing the same object but the coincidences seldom showed any degree of complexity in detail. For some 200 of the 579 percipients Miss Carruthers made out for each percipient a complete list of all the coincidences between the impressions of the percipient and those of all the

remaining percipients who took part on the same evening. The coincidences for the most part are of a very simple and commonplace kind, such as "Fan," "Basket," "Yellow flowers," "Ladies' shoes," "Polar bear," etc. Only very occasionally is there anything a little more complex, *e.g.*

- 12 Dec. { 199 (i) Gentleman swinging small weight at end of string.  
203 (i) A small ball swinging by a thread.
- 21 Nov. { 199 (i) Gentleman measuring with a tape measure.  
193 (iii) Old gentleman with measuring tape.

In the last example it was revealed by further correspondence that no. 193 imagined his gentleman to be measuring "ground," while no. 199 saw his gentleman measuring another man along the back, presumably for a suit. But even the examples we have quoted are almost the only ones worthy of note. Moreover, such interesting coincidences as these never occur twice between the same pair of percipients. Between nos. 199 and 203, for instance, I find no further coincidences of even a simple kind. The same is true for nos. 199 and 193.

It must be confessed in conclusion that throughout the present extensive series of experiments I find no satisfactory evidence of what Warcollier has called "mental contagion" that cannot be reasonably explained away as pointing to either a definite suggestion from the agents conveyed normally to the percipients or to the influences of a common civilised environment. And there I must leave the question.

#### *D. Capital Letters*

There were four attempts to transmit the impression of a capital letter of the English alphabet, together with five control experiments. On each of the four occasions the letter was selected by me by striking a page of print at random with the point of a pencil, the eyes being closed. The letter chosen was drawn on a postcard.

*Statistical analysis.* No single percipient guessed more than one of the four letters correctly. The method adopted is precisely similar to that used in the three figure number experiments. It will suffice to give a single table<sup>1</sup>—that for 30 January, when the letter H was shown. In the second column Table XXV we find the aggregate number of times each letter was guessed in all five control experiments. In the last column but one is recorded the number of times each letter was guessed on 30 January. It will be seen that certain letters like N, I, Y, U are so unpopular that it has been necessary to collect them into a single group.

<sup>1</sup> The remaining tables are available to anyone who cares to inspect them at the S.P.R. Rooms.

TABLE XXV  
30 JANUARY. "H"

	$N_s$ [Control].	Control Frequencies.	$\frac{N_s^1}{N} - \frac{N_s^1}{N^1}$	$N_s + N_s^1$	Frequencies for 30 Jan.	30 Jan. $N_s^1$ .	$\frac{\left[ \frac{N_s^1}{N} - \frac{N_s^1}{N^1} \right]^2 N N^1}{N_s + N_s^1}$
		$\frac{N_s}{N}$			$\frac{N_s^1}{N^1}$		
A	87	·0703	-·0133	111	·0836	24	·57
B	81	·0655	-·0146	104	·0801	23	·73
C	58	·0469	-·0158	76	·0627	18	1·17
E	48	·0388	+·0109	56	·0279	8	·75
G	74	·0598	+·0284	83	·0314	9	3·45
H	62	·0501	-·0091	79	·0592	17	·37
K	38	·0307	+·0063	45	·0244	7	·31
L	48	·0388	-·0100	62	·0488	14	·57
M	75	·0606	+·0014	92	·0592	17	·01
O	39	·0315	-·0173	53	·0488	14	2·00
P	64	·0517	-·0040	80	·0557	16	·07
R	56	·0453	-·0035	70	·0488	14	·06
S	83	·0671	+·0079	100	·0592	17	·22
T	49	·0396	+·0013	60	·0383	11	·00
V	43	·0348	+·0034	52	·0314	9	·08
W	41	·0331	-·0017	51	·0348	10	·02
XF	81	·0655	+·0272	92	·0383	11	2·86
DZ	78	·0630	+·0212	90	·0418	12	1·77
JQ	59	·0477	-·0150	77	·0627	18	1·04
INYU	73	·0590	-·0037	91	·0627	18	·05
Totals	1237 = N	·9998 [Check]	[Check] ·0000	1524	·9998 [Check]	287 = $N^1$	16·10 = $\chi^2$ 0·65 = $P_{\chi^2}$

$$\text{The values } ^1 \text{ of } Y_s = \frac{\left[ \frac{N_s}{N} - \frac{N_s^1}{N^1} \right]^2 N N^1}{N_s + N_s^1}$$

are given in the last column. These values to suggest super-normality should in the case of the particular letter visualised by the agents considerably exceed 4 in the majority of cases. In the given example the value of  $Y_s^2$  opposite "H" is only ·37. The

<sup>1</sup> As on p. 250  $Y_s$  denotes the ratio of the difference of the two frequency fractions  $\frac{N_s}{N}$  and  $\frac{N_s^1}{N^1}$  to the standard error of this difference.

sum of the values in the last column gives the value of  $\chi^2$  and the value of  $P_{\chi^2}$  found from tables determines the degree of "closeness of fit" between the actual series (30 January) and the control series.

The values of  $Y_s^2$  for the letter shown on each of the four occasions, together with the values of  $\chi^2$  and  $P_{\chi^2}$ , are given in the following table :

TABLE XXVI

Date.	Letter.	$Y_s^2$ .	$\chi^2$ .	$P_{\chi^2}$ .	No. of Guesses.
5 Dec.	- F	·01	26·11	·20	348
12 Dec.	- S	2·39	16·44	·68	287
30 Jan.	- H	·37	16·10	·65	287
13 Feb.	- W	·50	22·37	·21	235

It is seen that the value of  $Y_s^2$  never even approaches 4. In all four tables (82 entries) the value of  $Y_s^2$  exceeds 4 on two occasions, once (5·14) on 5 December and once (4·67) on 13 February.

It will be seen that two values of  $P_{\chi^2}$  exceed ·5 and the other two are less than ·5, which is what we should expect under normal circumstances. Two of the fits (12 December and 30 January) are very fair.

*Popularity of the different letters.* Taking all nine experiments we have a total of 2394 guesses. It will be seen from the following list that the most favoured letters are A, the labials B, M, P, the sibilant S and the aspirant H. The least popular are the nasal N and the letters Y, I, U.

The letters A, B were guessed 175 times each ; S, 145 times ; M, 141 times ; P, 122 times ; H, 118 times ; G, C, 117 times each ; R, 113 times ; L, 102 times ; T, 93 times ; W, O, 91 times each ; V, 83 times ; K, 82 times ; E, F, 80 times each ; D, 73 times ; X, 72 times ; J, Z, 65 times each ; Q, 56 times ; N, 45 times ; Y, 44 times ; I, 29 times ; U, 20 times. A total of 2394 guesses.

### E. Experiments with Playing Cards

There were five attempts to convey impressions of a playing card, and in addition three control experiments. The card was chosen by myself on each occasion by cutting from a full pack. As additional agents were frequently employed this selection generally took place in the presence of Miss Carruthers, a few days before the date of the experiment.

*Individual results.* The best performances of individual percipients are given below. The notation used is that of Dr Fisher's classification (*Proceedings*, xxxviii. 269-71).

TABLE XXVII

No. of Percipient.	No. of Tests tried.	Success.
569	5	NS in 2 tests.
575	5	1 NS and 1 ON.
116	5	1 NS and 1 ON.
338	5	NC in 2 tests.
255A	5	NC in 2 tests.
470	5	ON in 3 tests.

A further test was organised for these six most successful percipients. On the five Wednesday evenings commencing 2 October and ending 6 November 1929 it was arranged that I alone should concentrate on five playing cards between 10.0 p.m. and 10.25 p.m. Five minutes were allowed for the transmission of each card, the method of transmission being active concentration and visualisation for the first three cards and the "glance and forget" method for the remaining two. The five cards for each evening were drawn by Col. Hayward at 31 Tavistock Square, in the sole presence of Miss Carruthers, who noted their values and posted each card to me in a sealed envelope, which arrived on the morning of the experiment. The seals were broken at home or elsewhere by me at the times indicated on the envelopes, 10.0 p.m., 10.5 p.m., etc., in the presence of a witness who duly affixed his signature.

The six percipients received the usual notice with the appropriate times inserted and sent in their impressions to the S.P.R. Office in the usual way. These impressions were received by Miss Carruthers, who kept a record of them.

Each percipient thus did 25 guesses. These sets of 25 were scored on Fisher's system.

The scores were as follows :

TABLE XXVIII

No. of Percipient.	Mean Score.
569	9.10
575	11.42
116	12.87
338	10.51
255A	7.43
470	13.39

It will be seen that all these scores are well under 15.18 and there is no suggestion of supernormal faculty on the part of any percipient.

*Investigation of colour and suit.* As the total number of card guesses (1083 in all) is comparatively small I have thought it worth

while to make an analysis only of colour and suit. In Table XXIX I have worked out the expected preference factors<sup>1</sup> for red and black on the basis of the 6317 guesses obtained in the card-guessing experiment carried out with Miss Jephson and Mr Besterman (*Proceedings*, xxxix. 375). I thus obtain  $p_R = .513$  and  $p_B = .487$ . The factors obtained on the basis of the three control experiments agree pretty well with the above values, being  $p_R = .521$  and  $p_B = .479$ , even although the control series is a somewhat small one. I have based my preference factors on the joint experiment rather than on the B.B.C. experiment, since the conditions of the former experiment more nearly approach those of the actual series in which the card guessed one week probably to some extent influences the choice in the succeeding week. It will be seen from Table XXIX that all the deviations with the exception of that on 6 February are less than  $2 \times \text{S.D.}$  This particular week (6 February) does not, however, furnish any evidence in favour of the supernormal since the deviation is *negative*. But what is really important is the fact that on the *whole series* the deviation ( $-25$ ) is well under  $2 \times \text{S.D.} = 32.8$ .

TABLE XXIX  
ANALYSIS OF COLOUR

Based on the 6317 guesses of the "joint" card-guessing experiment.

Preference Factors (Red)  $p_R = .513$ .

" " (Black)  $p_B = .487$ .

Date.	Card shown.	Number of Guesses.	Number with Colour correct.	Expected Numbers.	Deviations from Expected Numbers.	Standard Deviations.
23 Jan. -	2D	274	144	141	+3	$\pm 8.3$
6 Feb. -	4S	214	81	104	-23	$\pm 7.3$
20 Feb. -	6C	234	121	114	+7	$\pm 7.6$
27 Feb. -	5H	195	87	100	-13	$\pm 7.0$
27 Mar. -	3H	166	86	85	+1	$\pm 6.4$
	Totals	1083	519	544	-25	

$$\text{S.D. for whole series} = \pm \sqrt{(8.3)^2 + (7.6)^2 + (7.3)^2 + (7.0)^2 + (6.4)^2} \\ = \pm 16.4$$

$$\text{Actual deviation for whole series} = -25.$$

<sup>1</sup>  $p_R$ , for instance, is obtained by dividing the number of times in which a red suit was chosen by the total number of guesses 6317 furnished by the joint experiment.

Table XXX gives a corresponding analysis in the case of suit, the preference factors being again calculated from the "joint experiment." Again the deviations, with the exception of that for 27 February, are well under  $2 \times \text{S.D.}$ , as is also the deviation for the whole series. The deviation on 27 February just exceeds  $2 \times \text{S.D.}$  but is *negative*.

TABLE XXX

## ANALYSIS OF SUIT

Based on the 6317 guesses of the "joint" card-guessing experiment.

Preference Factors (Spades)  $p_s = .239$ .  
 (Clubs)  $p_c = .248$ .  
 (Diamonds)  $p_d = .253$ .  
 (Hearts)  $p_h = .260$ .

Date.	Card shown.	Number of Guesses.	Number with Suit correct.	Expected Numbers.	Deviations from Expected Numbers.	Standard Deviations.
23 Jan.	- 2D	270	78	68	+10	$\pm 7.1$
6 Feb.	- 4S	212	43	51	-8	$\pm 6.2$
20 Feb.	- 6C	233	58	58	$\pm 0$	$\pm 6.6$
27 Feb.	- 5H	195	37	51	-14	$\pm 6.2$
27 Mar.	- 3H	166	37	43	-6	$\pm 5.7$
	Totals	1076	253	271	-18	

$$\text{S.D. for whole series} = \pm \sqrt{(7.1)^2 + (6.2)^2 + (6.6)^2 + (6.2)^2 + (5.7)^2} \\ = \pm 14.3$$

$$\text{Actual deviation for whole series} = -18.$$

*Acknowledgments.* In concluding these statistical sections I especially wish to thank Dr E. S. Pearson of the Biometric Laboratory, University College, for his very valuable assistance in connection with the  $P_x$  tables and the problem of "mental contagion." Not only has Dr Pearson spent several hours discussing these matters with me, but he has also taken the trouble to work out in detail the table for letter "F" as a specimen. He has also kindly allowed me to copy out data from Karl Pearson's tables for statisticians in the library of the laboratory.

I have already had occasion to mention the valuable assistance rendered me by Dr Fisher, F.R.S., in solving the problem of the number coincidences, and the best thanks of the Society are due to this gentleman, as well as to Dr Pearson, for the unfailing courtesy

and patience with which they have met the difficulties of a mere beginner in statistics.

I must also thank my friend Dr A. E. Church, another statistician, for very useful advice relating to the graph showing the distribution of scores.

*The dictionary tests, 1928-1929.* The dictionary "control" was continued throughout the year 1928-1929 under the conditions described in Part I. Many percipients, however, omitted to carry out the dictionary test and most others erred in choosing an insufficient number of words to tally with the number of distinct ideas contained in their impressions. Some excuse must, of course, be allowed as opinions as to what constituted a distinct idea must naturally vary. An impression such as "saw man tossing a ball" would, according to my intention, require three "control words" corresponding to the three different ideas of "man," "tossing" and "ball," whereas many percipients would content themselves with only one word.

The only use I have made of the control in the present series of experiments is to examine, for the sake of curiosity, the number of successful hits scored by the dictionary each week on the objects shown to the agents. Here are a few specimen weeks chosen quite at random.

#### TABLE XXXI

(a) 10 October. Total no. of words=1808.

(i) Object of experiment: "Red poppies." Word: Geranium (518).

(ii) Object of experiment: "Indian tomahawk." Words: Hatchet (98, 246), mattock (42), pickaxe (345), Indian (453), moccasin (388, 332).

(iii) Object of experiment: "Small Egyptian head and tape measure." Words: Egyptian (581), mummy (60), obelisk (89), head (445), phrenological (169), rattle (255, 314).

(b) 24 October. Total no. of words=1068.

(i) Object of experiment: A toy mandolin. Words: Guitar (438, 568), lute (366), flute (581), bassoon (56), cornet (276), hautboy (77), harmonium (283), saxophone (104).

(ii) Object of experiment: "Long nose with spectacle rims." Words: Spectacles (675), caricature (488).

(c) 14 November. Total no. of words=744.

(i) Object of experiment: "White mistletoe berries and green leaves." Words: Oak<sup>1</sup> (320), dagger<sup>1</sup> (197).

<sup>1</sup> See p. 286.



(ii) Object of experiment: "A toy bear with pole." Word: Polo (181.)

(d) 5 December. Total no. of words=815.

(i) Object of experiment: "Postcard picture of kangaroo." Words: Maori (186), menagerie (122), rat's tail (286). NOTE.—This last item, rat's tail, is very remarkable as the long tail of the kangaroo in the photograph closely resembled a rat's tail, and especial attention was devoted to the tail by the agents.

(e) 12 December. Total no. of words=682.

(i) Object of experiment: Postcard photograph of alligator. Words: Cuttle-fish (624), death (152).

(f) 30 January. Total no. of words=550.

(i) Object of experiment: "Brown bear pushing ball." Words: None applicable.

(g) 13 February. Total no. of words=508.

(iii) Object of experiment: "Calendar with picture of Alsatian dog and red ribbon." Words: Calendar (173), dog (28, 583), retriever (318).

(h) 13 March. Total no. of words=469.

Object of experiment: "A yellow toy duck with orange beak. Also a mechanical pecking bird." Word: Beak (656). In addition, ten words which were names of birds but no water birds among them.

These examples will suffice to show something of the scope of chance coincidence when a large number of guesses are made.

*Comparison with the card-guessing experiment.*<sup>1</sup> It is of some interest to compare the performance of the nine percipients who obtained the highest scores in the "joint" card-guessing experiment with their achievements in the present experiment.

TABLE XXXII

Identity No. of Percipient.	Original Mean Score in Card- guessing Experiment.	Percentage Score in present Experiment.	Possible Score.
118	17.96	11.2%	1020
112	17.01	8.0%	200
366	16.77	11.8%	560
319	16.02	4.8%	660
256	15.47	5.2%	1020
233	15.46	6.4%	800
98	15.46	10.3%	960
623	15.32	3.2%	440
221	15.10	7.2%	640

<sup>1</sup> *Proceedings*, xxxix. 395, Table X.

The only case at all interesting is that of percipient 118, who in the card-guessing experiment obtained a success exceeding  $3 \times$  standard deviation. Although in the present series his total percentage score is only 11.2%, he is the most successful of all the percipients in guessing the *colour* of the object (cf. p. 233). However, in the card-guessing experiment his forte was decidedly *not* colour or suit, but *number*. The coincidence, therefore, is probably only a mere fluke.

Similarly, of the eight percipients with possible scores  $\geq 300$  who obtained the highest percentage mean scores in the present experiment (15.2–14.0%), only one obtained a mean score in the card-guessing experiment exceeding 12 (12.7). The other seven were below even the average (11.18). There appears, therefore, no sort of correlation between successful guessing in the two experiments.

*Conclusion.* At the end of an elaborate and somewhat minute examination which has occupied a considerable portion of the leisure time of four years we may conclude without hesitation that we fail to discover on the scale of the present experiments any general mass faculty of supernormal perception. And this is true for each of the five classes of objects which have been made the material of experiment. Increasing the number of agents even until it reaches 30 per cent. of the number of the percipients produces no observable effect on the result. Similarly we fail to find any serious evidence whatever for what Warcollier has called "*la contagion mentale*" or telepathic rapport between pairs or among groups of percipients.

But though I have spent weeks searching for such things as cross-correspondences, I have not found them. What does seem to emerge from the present experiments is the real existence of mass preference factors for certain simple geometrical figures—letters of the alphabet, colours, numbers, etc. That these factors are subject to a certain limited fluctuation is only to be expected, but when the same group of people work week after week *under the same conditions* they appear to remain fairly constant. The same is probably true within wider limits of common objects, such as cats, dogs, flowers, birds, etc., though, as we have seen in the experiments with the black cloth, a simple suggestion from the experimenter will readily disturb the distribution and cause certain classes of objects to be guessed with more than the usual frequency.

How far the determination and use of such preference factors will be an aid in appraising the value of successful hits in future experiments practice can alone determine. From the data of the present experiment I have worked out such preference factors for more than 150 different objects. The value of  $p=1$  in  $N$  given for each object may be taken to represent (with fair approximation when  $p$  is greater than  $1/100$  but only roughly where  $p$  is less than

1/1000) the chance that the *average* person who keeps his mind passive for ten minutes and records during that interval an average of 1.85 distinct visualisations shall note the object in question. For the object "flowers of any description" the "average" person of the particular class who did the experiments might be expected to note a flower or flowers about once in 18 sittings in the long run.

But this "average" person probably does not exist as an individual, since each person in the world will have a bias towards certain specific classes of objects. Yet even when dealing with an individual one might reasonably expect that his preferences would be abnormal only with respect to a small percentage of the objects catalogued in the present lists, covering as these do an extremely wide and representative field.

At the same time the tables of preference factors will be better adapted for testing considerable groups of people than individuals.

Needless to add that the persons subjected to these "standardised" object tests should not be those who have studied the present lists, for with such persons the tests might fail as ignominiously as the standardised Binet-Simon tests of intelligence if applied to a group of schoolboys who had learned the answers to all the questions given in Mr Burt's book.

But to return to the main conclusions of this report. If we have failed on the present scale of numbers to obtain evidence of a mass faculty of supernormal perception, we have failed equally to discover individual percipients with indisputable claims to a supernormal power. Two or three isolated cases in which the evidence is suggestive, but very far from conclusive in any way, is all we are able to record.

This almost universal paucity of continued success in our opinion greatly enhances the claims of a few exceptional people in the world (such as Mrs Piper and Mrs Leonard) to be considered possessors of supernormal faculties. For these individuals have succeeded in producing extraordinarily complex coincidences week after week and year after year. Between the work of say Mrs Leonard and that of any percipient who took part in the present experiments there is a wide and unbridgeable gulf. That does not, of course, imply that had Mrs Leonard taken part in the present series she would have done immeasurably better than the average, for it may be that the conditions of the present experiment are not those under which supernormal knowledge makes its appearance. Possibly some special state of mind such as hypnosis or trance *in combination with faculties* that cannot be *cultivated but are innate* is required before perception at a distance takes place. Possibly also the co-operation of the discarnate is necessary for the production of telepathy among the living. And even when, as in the case of Mrs

Leonard, such a combination is realised some sort of personal link may be necessary, such as a glove, etc., belonging to the person whose environment the psychic is trying to penetrate. Or again, some strong emotional stimulus, such as belief in the spirit hypothesis provides, may be an important factor.

In the case of normal or almost normal persons, we may doubt if they ever have experiences of telepathic perception, except when in some state of peculiar mental stress or crisis.

It is hoped that the present report will at least do something to combat a growing tendency on the part of many psychical researchers to assume, and apparently to believe, that psychic experiences are as common as blackberries. One constantly hears of little groups of people, apparently the possessors of no exceptional or outstanding psychic gifts, describing experiments in telepathy among themselves, and success is almost invariably claimed for such experiments. Such accounts will seldom bear a critical examination. The usual method is to select a few of the more striking coincidences from large numbers of failures. Then follows a vaguely worded reference to percentages of successes, in which the term "success" is often allowed the most elastic interpretation, not infrequently being applied to objects not even selected by the experimenter. But mere percentages of successes are not very useful unless we have definite and precise expectations with which to compare them. In such experiments as I am alluding to these standards of comparison are almost invariably lacking, or at any rate inadequate. Moreover, instead of being given an exact account of the precise conditions under which each experiment was carried out, we are regaled with "samples" of successes generally chosen to illustrate preconceived theories of the way in which telepathy is supposed to work. I believe this inveterate determination to find the supernormal at all costs in every series of experiments to be the most injurious influence in psychical research to-day. The scepticism of the open-minded man of science who has not given much attention to the subject is an entirely wholesome thing compared with the "will to believe" shown by the class of psychical researchers whose real aim appears to be not the investigation of the conditions under which telepathy and clairvoyance occur, or the question whether they occur at all, but the *production of examples of these faculties for the purpose of bolstering up beliefs they hold on the destiny and spiritual nature of man or for the purpose of confuting the spirit hypothesis*. It is easy to understand how the psychic researcher actuated by such motives becomes the prey to self-deception, as it is easy to understand his innate dislike of statistical methods, and in fact of all minute and dispassionate threshing out and weighing up of evidence. His desire is for

supernormal happenings, and he is not disposed to look too critically at the methods by which these supposedly supernormal facts were established. And experiments in telepathy and clairvoyance unfortunately are the easiest in the world to manipulate so as to give the illusion of success.

But in the present obscure position of psychical research, when even the occurrence of telepathy is granted by only a small minority of men of science, it is just as important to investigate conditions under which telepathy does not occur as to produce specific examples of its occurrence. It is because I have felt that the methods we employ in estimating our results are at least as important as the results themselves that I have thought it worth while to carry out this investigation to the bitter end of a negative conclusion.

## APPENDIX I

DR R. A. FISHER, F.R.S., has very kindly communicated to me the following investigation of the theoretical distribution of  $N$  random guesses at three figure numbers. I give Dr Fisher's demonstration in his own words. I alone am responsible for the illustration of the use of the formulae in the section beginning "As an illustration we may apply the above formula . . . etc."

Dr Fisher writes :

"First as to the theoretical distribution for  $N$  really random guesses at three figure numbers.

"If  $n_1, n_2, \dots n_{900}$  are the number of times the individual 900 numbers are guessed,

$$\sum_{r=1}^{r=900} n_r = N.$$

"The frequency of occurrence of this series is the plain multi-variate expression

$$\frac{N!}{n_1! n_2! \dots n_{900}!} \cdot \frac{1}{900^N}.$$

"The numbers of the series  $n_1, n_2, \dots n_{900}$  will not be all different, and some of them may be zero.

"Suppose that in the series  $n_1, n_2, \dots n_{900}$  the number  $p_1$  occurs  $\pi_1$  times, the number  $p_2$  occurs  $\pi_2$  times, and, finally, the number  $p_r$  occurs  $\pi_r$  times, so that

$$\pi_1 + \pi_2 + \dots \pi_r = 900.$$

$$p_1 \pi_1 + p_2 \pi_2 + \dots p_r \pi_r = N.$$

"The distribution is now specified by a particular partition of the number  $N$  into 900 parts ; any particular partition includes

$\frac{900!}{\pi_1! \pi_2! \dots \pi_r!}$  of the occurrences first considered and has a frequency

$$\frac{N!}{[p_1!]^{\pi_1} [p_2!]^{\pi_2} \dots [p_r!]^{\pi_r}} \cdot \frac{900!}{\pi_1! \pi_2! \dots \pi_r!} \cdot \frac{1}{900^N} \dots (2).$$

"Note that (2) summed for all partitions must give unity. The mean value of  $\pi_r$  is obtained by multiplying (2) by  $\pi_r$  and summing for all partitions, or what comes to the same thing, for all partitions

which contain a part  $p_\sigma$ ; these will each correspond to a partition of  $N - p_\sigma$  into 899 parts, so writing

$$\pi_\sigma \left[ \frac{N!}{[p_1!]^{\pi_1} [p_2!]^{\pi_2} \dots [p_\sigma!]^{\pi_\sigma} \dots [p_r!]^{\pi_r}} \cdot \frac{900!}{\pi_1! \pi_2! \pi_\sigma! \dots \pi_r!} \cdot \frac{1}{900^N} \right]$$

in the form

$$\frac{N!}{[N - p_\sigma]! p_\sigma!} \cdot \frac{899^{N-p_\sigma}}{900^{N-1}} \cdot \left[ \frac{(N - p_\sigma)!}{(p_1!)^{\pi_1} \dots (p_\sigma!)^{\pi_\sigma-1} \dots (p_r!)^{\pi_r}} \cdot \frac{899!}{\pi_1! \dots (\pi_\sigma - 1)! \dots \pi_r!} \cdot \frac{1}{899^{N-p_\sigma}} \right]$$

we see that the mean value of  $\pi_\sigma$  comes out to be

$$\frac{N!}{(N - p_\sigma)! p_\sigma!} \cdot \frac{899^{N-p_\sigma}}{900^{N-1}}.$$

" Putting  $p_\sigma = 0, 1, 2$  etc., we have

$$\frac{899^N}{900^{N-1}} \left[ 1, \frac{N}{899}, \frac{N(N-1)}{899^2 \cdot 2!}, \frac{N(N-1)(N-2)}{899^3 \cdot 3!}, \dots \right]$$

a series to which the Poisson series

$$900 \times e^{-m} \left[ 1, m, \frac{m^2}{2!}, \frac{m^3}{3!}, \dots \right]$$

( $e$  being as usual the base of natural logarithms  $= 2.71828$ ) gives a good approximation where  $m = N/900$ .

" Hence with  $N$  random guesses the distribution of the 900 three figure numbers will be as follows :

Number of numbers guessed 0 times	$= e^{-m} \times 900,$
" " " 1 "	$= e^{-m} \cdot m \times 900,$
" " " 2 "	$= \frac{e^{-m} \cdot m^2}{1 \times 2} \times 900,$
" " " 3 "	$= \frac{e^{-m} \cdot m^3}{1 \times 2 \times 3} \times 900,$
" " " $r$ "	$= \frac{e^{-m} \cdot m^r}{1 \times 2 \times 3 \dots r} \times 900.$

" It is useful, however, to have a test for goodness of fit.

" Suppose there are  $N$  perfectly random and independent selections of the 900 possible numbers. The chance expectation of each of these 900 numbers is  $m = N/900$  and a test of goodness of fit in the case of an observed distribution can be carried out by

calculating  $\chi^2 = \sum_{r=1}^{r=900} \frac{(n_r - m)^2}{m}$  if the number of observed cases is

sufficiently numerous and  $n_1, n_2, \dots, n_{900}$  are the observed numbers of times each of the 900 three figure numbers occur in the actual case under consideration.

"This expression for  $\chi^2$  is easily seen to be the same as

$$\frac{900}{N}[\pi_1 p_1^2 + \pi_2 p_2^2 + \dots \pi_r p_r^2] - N,$$

the  $p$ 's and  $\pi$ 's having the same meaning as on page 273.

$\chi^2$  can therefore be easily found, and hence  $\sqrt{2\chi^2}$  can be calculated and compared with  $\sqrt{2 \times 899 - 1}$  (899 being the number of degrees of freedom).

The difference  $\sqrt{2\chi^2} - \sqrt{2 \times 899 - 1}$

i.e.  $\sqrt{2\chi^2} - \sqrt{1797}$ , can be shown<sup>1</sup> to be a normal variate with a standard deviation of unity."

As an illustration we may apply the above formula to both the "actual" and "expected" numbers given in Table XXIV for the date 27 February.

Reading first along the line "E" opposite 27 February we find  $\pi_1 = 698.9$ ,  $\pi_2 = 176.8$ ,  $\pi_3 = 22.3$ ,  $\pi_4 = 1.8$ , and the higher values of  $\pi$  are clearly very small. Hence  $p_1 = 0$ ,  $p_2 = 1$ ,  $p_3 = 2$ ,  $p_4 = 3$ ,  $N = \text{no. of guesses for 27 February} = 228$ .

Hence we find

$$\chi^2 = \frac{900}{228}[176.8 + 2^2 \times 22.3 + 3^2 \times 1.8] - 228 = 886.$$

$$\text{Hence } \sqrt{2\chi^2} - \sqrt{1797} = \sqrt{1772} - \sqrt{1797} = 42.1 - 42.4 = -0.3.$$

$$\text{Hence } \frac{\text{Deviation}}{\text{Standard Deviation}} = \frac{-0.3}{1} = \frac{1}{3} \text{ approx.}$$

This is of course an excellent fit, as would be expected, since the values in line "E" are *calculated* values.

Taking now the *observed* values for the same date opposite line "A" (27 February) we have  $\pi_1 = 709$ ,  $\pi_2 = 158$ ,  $\pi_3 = 29$ ,  $\pi_4 = 4$ ,  $\pi_5$  and higher values = 0.

$$\text{Hence } \chi^2 = \frac{900}{228}[158 + 2^2 \times 29 + 3^2 \times 4] - 228 = 995.$$

$$\text{And } \sqrt{2\chi^2} - \sqrt{1797} = \sqrt{1990} - \sqrt{1797} = 44.6 - 42.4 = 2.2.$$

$$\text{Hence } \frac{\text{Deviation}}{\text{Standard Deviation}} = \frac{2.2}{1} = 2.2.$$

Here we have a suggestion of interference with the normal distribution, due to the fact that the guesses are not random but biassed in favour of special types of three figure numbers.

<sup>1</sup> Cf. *Statistical Methods for Research Workers*, chap. iv, by R. A. Fisher. F.R.S.



## APPENDIX II

DEMONSTRATION OF THE FORMULA  $Y_s^2 = \frac{\left[ \frac{n_s}{N} - \frac{n_s^1}{N^1} \right]^2 \cdot NN^1}{n_s + n_s^1}$ .

Suppose we have a set of  $N$  individuals each of which can be assigned to one of  $k$  groups according to certain characteristics. Let the numbers of individuals which belong to the  $k$  groups be  $n_1, n_2, n_3, \dots, n_k$ , so that

$$n_1 + n_2 + n_3 + \dots + n_k = N.$$

The proportion of individuals in the  $s$ th group will then be  $\frac{n_s}{N}$ .

Suppose now we have a second set of  $N^1$  individuals which can be assigned to the same  $k$  groups. Let the numbers of individuals which belong to the  $k$  groups be  $n_1^1, n_2^1, \dots, n_k^1$ , so that

$$n_1^1 + n_2^1 + n_3^1 + \dots + n_k^1 = N^1.$$

The proportion in the  $s$ th group will be  $\frac{n_s^1}{N^1}$ .

The proportions  $\frac{n_s}{N}$  and  $\frac{n_s^1}{N^1}$  will not usually be quite the same.

The question arises: Can the two sets of  $N$  and  $N^1$  be regarded merely as two samples of a large common population and are the differences in proportion  $\left[ \frac{n_s}{N} - \frac{n_s^1}{N^1} \right]$  merely chance differences? Or on the other hand are the two groups  $N$  and  $N^1$  fundamentally different and the discrepancy in the ratios  $\frac{n_s}{N}, \frac{n_s^1}{N^1}$  too large to be explained by chance?

Now assuming that  $N, N^1$  are mere samples of a larger common population let us suppose that the *true value* of the proportion for the  $s$ th group is  $p_s$ . Then for the group  $N$  the standard deviation of the ratio  $\frac{n_s}{N}$  will be  $\sqrt{\frac{p_s(1-p_s)}{N}}$  and the standard deviation of the ratio  $\frac{n_s^1}{N^1}$  will be  $\sqrt{\frac{p_s(1-p_s)}{N^1}}$ .

Hence the standard deviation of the difference  $\frac{n_s}{N} - \frac{n_s^1}{N^1}$  will be

$$\sqrt{\frac{p_s(1-p_s)}{N} + \frac{p_s(1-p_s)}{N^1}} = \sqrt{p_s(1-p_s)} \sqrt{\frac{N+N^1}{NN^1}}.$$

The true value of  $p_s$  is of course unknown, but we might take as our best approximation the value  $p_s = \frac{n_s + n_s^1}{N + N^1}$ .

Now if the number of groups  $k$  is large the value of  $p_s$  will generally be small and  $\sqrt{p_s(1-p_s)}$  will be nearly equal to  $\sqrt{p_s}$ .

Hence an approximation to the standard error of the difference  $\frac{n_s}{N} - \frac{n_s^1}{N^1}$  will be  $\sqrt{p_s} \sqrt{\frac{N + N^1}{NN^1}} = \sqrt{\frac{n_s + n_s^1}{NN^1}}$  nearly.

Hence we see that the difference  $\frac{n_s}{N} - \frac{n_s^1}{N^1}$  divided by the estimated standard deviation of this difference is equal to

$$\frac{\left[ \frac{n_s}{N} - \frac{n_s^1}{N^1} \right] \sqrt{NN^1}}{\sqrt{n_s + n_s^1}} = Y_s \text{ (say).}$$

For there to be a serious discrepancy in say the  $s$ th group of the two sets  $N$  and  $N^1$  the value of  $Y_s$  should considerably exceed 2. Or  $Y_s^2$  should exceed 4.

But it is possible to go further and to institute a comparison of the two sets  $N$  and  $N^1$ , considering them as wholes. The following method is due to the genius of Prof. Karl Pearson.

The quantity formed by adding together the squares of the values of  $Y_s$  for all the different groups,

$$\text{i.e. } Y_1^2 + Y_2^2 + Y_3^2 + \dots + Y_k^2, \text{ is known as } \chi^2$$

and is a sort of measure of the discrepancy between the two sets  $N, N^1$  considered as wholes.

Now provided that the values of  $n_s$  and  $n_s^1$  are not too small (say when all the values  $n_s, n_s^1$  are each  $\geq 10$  or thereabouts), Prof. Pearson has shown that it is possible to estimate theoretically the probability, in drawing two random samples  $N, N^1$  from a large common population classed in  $k$  groups, of obtaining a value of  $\chi^2$  greater than or equal to some observed value. Tables have been constructed on the double entry principle in which the values of  $\chi^2$  are tabulated horizontally at unit intervals and  $k$  the number of groups tabulated vertically. For each pair of values of  $\chi^2$  and  $k$  we read from the table a decimal called  $P_{\chi^2}$ . This quantity  $P_{\chi^2}$  represents the chance or probability that if the two sets  $N, N^1$  were random samples of a common population a value of  $\chi^2$  as great or greater than the actual value would be obtained.

Let us illustrate by taking Table XVI. On 16 January the number 555 is shown to the agents in London. At the same time 235 persons in different parts of the country each guess a three figure number. A certain proportion of the guesses registered will have 5 as the last figure, i.e. in the units place. What we wish to know

is: Is the proportion of 5's in the last place greater than it would have been if the agents had not concentrated on any number at all? We can only test this by finding out what the proportion of 5's is on an evening when the agents do not think of any three figure number. But it is obviously better to take six such evenings and pool the numbers obtained and so obtain a more truly representative proportion than could be obtained from a single evening. Now since the last figure may be 0, 1, 2, ... 9 there are altogether ten groups, so that  $k=10$ . We therefore count the numbers each week which fall into each of these ten groups, and by pooling the six weeks' contributions to each group we obtain ten larger groups. The numbers  $n_1, n_2, \dots, n_{10}$  in these control groups are tabulated opposite the corresponding digits in the second column of Table XVI. The sum of the values in the ten groups, i.e.  $n_1 + n_2 + n_3 + \dots + n_{10}$ , is equal to 1371, which is our  $N$  of the first set. The proportions for each group (that is the values of  $\frac{n_s}{N}$ ) are tabulated in the third column.

$$\text{Thus } \frac{n_5}{N} = \frac{152}{1371} = 0.111.$$

Now our second set  $N^1$  consists of the 235 guesses obtained on 16 January, and in Col. 7, under the heading  $n_s^1$  (16 January), are tabulated the number of guesses which fall in each of the ten groups. Thus  $N^1=235$  and  $n_5^1=20$ . The proportions for each group, that is the values of  $\frac{n_s^1}{N^1}$ , are tabulated in Col. 5 under this heading.

$$\text{Thus } \frac{n_5^1}{N^1} = \frac{20}{235} = 0.085.$$

Col. 4 gives the values of the difference  $\frac{n_s}{N} - \frac{n_s^1}{N^1}$  for each group.

In this particular example it happens that the proportion  $\frac{n_5^1}{N^1} = 0.085$  is actually less than the proportion  $\frac{n_5}{N}$  in the control experiments, so that there can be no question of the concentration of the agents having increased the proportion of 5's.

Still this is not always the case, and by examining the value of  $Y_s^2$  in the last column we can see in the case of any digit whether the difference in the two proportions is probably due to chance or not. In this example we look in the last column opposite the digit 5 and find  $Y_5^2 = 1.27$ .

This shows that  $Y_5$  is considerably less than 2 and no significance can be attached to the difference in proportions of the given experiment and the control for this particular digit. But the same holds good for each of the other digits, since each value of  $Y_s^2$  in the last column is considerably less than 4. If, however, we wish to see

how the series for 16 January compares as a whole with the control series (*i.e.* whether or not they can be regarded as two samples drawn from a much larger series) we add up the values of  $Y_i^2$  in the last column and thus obtain  $\chi^2 = Y_1^2 + Y_2^2 + Y_3^2 + \dots Y_{10}^2$ .

( $\chi^2$  here = 8.61, with  $k=10$ .)

Turning now to the last two rows of Table XX, under the date 16 January we read  $\chi^2=8.61$ ,  $P_{\chi^2}=.47$ .

This must be interpreted to mean that if we made a pair of control experiments employing no agents, and if in the first experiment 1371 guesses were obtained and in the second only 235 guesses, then if we kept on repeating this pair of experiments (taking care that the batch of guesses and other general conditions did not vary) we might expect to get a value of  $\chi^2$  as large as or greater than 8.67 on the average about 47 times in every 100 trials. In other words the divergence of the series on 16 January from the combined control series is so commonplace that it would be about even odds that you would get a divergence as great on a single trial.

As explained on p. 247 tables similar to Table XVI were constructed for each three figure number experiment, separate tables being made for the hundreds, tens and units digits.

To have published all these tables, 29 in number, would, however, have been very expensive, and, moreover, unnecessary, since the only vital part of each table is the last column giving the values of  $Y_i^2$  for each digit.

I have thought it wise to give these last columns in full, since obviously it was important to demonstrate that the experiments on individual weeks really are close fits with the control series.

If the general fits had been bad we might have had to conclude that mass preferences for numbers, capital letters, etc. were so fluctuating and unreliable as to defy any attempts at statistical evaluation. In such an event, of course, the controls would have been useless.

The last columns of the 29 three figure number tables have been collected under each date in Tables XVIII-XXI. From these tables we can find the value of  $Y_i^2$  for any digit in the hundreds, tens or units places for each date on which the agents concentrated on a three figure number. The sum of the numbers in each column gives the value of  $\chi^2$ , and under this is tabulated the corresponding value of  $P_{\chi^2}$ . In each column the value in heavy type is the value of  $Y_i^2$  corresponding to the special digit exhibited to the agents on the date at the head of the column. Had there been any considerable occurrence of mass telepathy a good proportion of these heavy type values (considerably exceeding say 30 per cent.) would have been greater than 4, whereas not even a single value in any of the four tables even approaches 4.

### APPENDIX III

#### LIST OF OBJECTS OF EXPERIMENT AND INDIVIDUAL SCORING SYSTEM, OCTOBER 1928-MARCH 1929<sup>1</sup>

I. 10 October 1928 ; 414 percipients ; agents : Prof. and Mrs M., Miss B., Mr O., and S. G. S.

The notice sent out to the percipients reads on each occasion, but for the change in date : " Wednesday, October 10, 1928. Three different objects will be shown, one each at 10.0 p.m., 10.10 p.m., 10.20 p.m. [Signed] S. G. SoAL."

i. 10.0-10.10 p.m. I exhibited three *large red artificial poppies* with double rows of petals. Green leaves. Talk of poppy fields at Cromer, of poppies in Flanders, the opium poppy, the sea-poppy, poppy the symbol of sleep, Francis Thompson's simile " His great pentecostal tongue." <sup>2</sup>

<i>Scoring Scheme I (i)</i>							<i>Score</i>
Red artificial poppies	-	-	-	-	-	-	20
<i>Artificial red</i> flowers of any other kind	-	-	-	-	-	-	17
Mention of word " poppy "	-	-	-	-	-	-	15
Mention of red flowers only	-	-	-	-	-	-	12
Mention of any <i>artificial</i> flowers ( <i>not red</i> )	-	-	-	-	-	-	10
Mention of <i>pink</i> flowers	-	-	-	-	-	-	10
Any specially vivid impression of red objects	-	-	-	-	-	-	10
Mention of red <i>and</i> yellow flowers	-	-	-	-	-	-	9
Mention of purple flowers	-	-	-	-	-	-	8
Mention of flowers of other colours or colour not mentioned	-	-	-	-	-	-	5
Any casual mention of a red object	-	-	-	-	-	-	4

<sup>1</sup> All the transmissions in this series were made from 2 Adelaide Road, London, N.W.

<sup>2</sup> It will be observed that no place in the scheme is allocated for an impression bearing upon item (a) "*His great pentecostal tongue,*" etc., or for a mention of *poetry* or *sleep*. It must be inferred that no percipients mentioned any of these items on 19 October. In every case the scheme for each object was amplified and modified to meet the actual guesses made by the percipients. So that when on examining the percipients' records a fresh guess arose which was relevant to the object of the experiment, but unprovided for by the existing tariff, an appropriate place was made for it in the scheme. In each case I commenced with a skeleton scheme, which was gradually filled in as I read more and more records.

ii. 10.10-10.20 p.m. A small toy *tomahawk* with curved handle and wooden head covered with silver paper. Talk of Red Indians.

<i>Scoring Scheme I (ii)</i>							<i>Score</i>
Mention of tomahawk	-	-	-	-	-	-	20
Mention of an axe or chopper or of chopping	-	-	-	-	-	-	15
Mention of a Red Indian (or associations)	-	-	-	-	-	-	15
Mention of any other savage weapon	-	-	-	-	-	-	12
Mention of a golf club	-	-	-	-	-	-	8
Mention of war or battle	-	-	-	-	-	-	6
Mention of any <i>metal</i> object	-	-	-	-	-	-	4

iii. 10.20-10.30 p.m. A small brown female Egyptian head out of whose *mouth* a tape measure could be drawn and let fly back again. Inches on one side of tape and centimetres on the other.

<i>Scoring Scheme I (iii)</i>							<i>Score</i>
Mention of Egyptian head and tape measure	-	-	-	-	-	-	20
Mention of Egyptian head only	-	-	-	-	-	-	13
Mention of a measuring tape or of measuring	-	-	-	-	-	-	10
Mention of negro's head or coloured native's head	-	-	-	-	-	-	8
Mention of a woman's head (head or bust only)	-	-	-	-	-	-	6
Mention of a baby's rattle or other rattling object	-	-	-	-	-	-	5
Any impression directly connected with Egypt	-	-	-	-	-	-	5

II. 17 October 1928 ; 386 percipients ; agents : Prof. and Mrs M., Mr O., and S. G. S.

i. 10.0-10.10 p.m. A toy model yacht with one white sail and containing a small figure of a native with a feather in his hat.

<i>Scoring Scheme II (i)</i>							<i>Score</i>
Mention of a <i>sailing</i> ship and native and feather	-	-	-	-	-	-	20
Mention of sailing ship and native only	-	-	-	-	-	-	17
Mention of sailing ship with any figure in it	-	-	-	-	-	-	15
Mention of a <i>non-sailing</i> ship with native	-	-	-	-	-	-	12
Mention of any <i>sailing ship</i> but with no figure	-	-	-	-	-	-	12
Mention of a <i>non-sailing</i> ship with any figure	-	-	-	-	-	-	10
Mention of any kind of ship other than a sailing ship ( <i>e.g.</i> steamer, canoe, etc.), with no figure in it	-	-	-	-	-	-	5
Mention of a native with feather in hat	-	-	-	-	-	-	5
Mention of single feather but no native	-	-	-	-	-	-	3
Mention of <i>white triangle</i>	-	-	-	-	-	-	3
Mention of the sea or of a river	-	-	-	-	-	-	3
Mention of a bunch of feathers	-	-	-	-	-	-	2
Any mention of a native or Indian only	-	-	-	-	-	-	2
Mention of a white sheet	-	-	-	-	-	-	2

ii. 10.10-10.20 p.m. I ignited a small paper bomb which made a slight detonation. A paper flower was shot out and much paper scattered about. I then applied a match to a piece of prepared paper on which was drawn a representation of a balloon. The paper balloon rose slowly to the ceiling and fell in a charred mass.

<i>Scoring Scheme II (ii)</i>	<i>Score</i>
Mention of bomb and paper balloon - - - - -	20
Mention of the word <i>bomb</i> or <i>bursting bomb</i> - - - - -	12
Mention of an explosion of any sort ( <i>e.g.</i> gun or pistol) - - - - -	10
Mention of <i>fireworks</i> (without description) - - - - -	10
Mention of <i>burning paper</i> - - - - -	10
Any mention of balloon or parachute only - - - - -	8
Mention of paper being scattered about - - - - -	5
Mention of smoke or steam - - - - -	5
Any mention of burning (other than paper) - - - - -	5
Any idea associated with gun or pistol - - - - -	4
Mention of box of matches or a match - - - - -	4

iii. 10.20-10.30 p.m. The lights were extinguished and a few small firework sticks were lit, which emitted showers of silver stars or sparks.

<i>Scoring Scheme II (iii)</i>	<i>Score</i>
Mention of firework stars in darkness - - - - -	20
Mention of fireworks of the Catherine-wheel or sparking variety - - - - -	17
Mention of any showers of sparks - - - - -	15
Mention of stars on a dark background - - - - -	15
Any mention of flashes of light in darkness - - - - -	12
Mention of stars only - - - - -	10
People peering into darkness - - - - -	10
Mention of <i>fireworks</i> (without description) <sup>1</sup> - - - - -	10
Mention of a light (not contrasted with darkness) - - - - -	8
Impression of blackness or darkness - - - - -	8

III. 24 October 1928 ; 385 percipients ; agents : Prof. and Mrs M., Mr O., and S. G. S.

The following notice was sent to percipients: "Wednesday, 24 October 1928. Three different objects will be shown, one each at 10 p.m., 10.10 p.m., 10.20 p.m. (this object will be a geometrical sketch). Please draw your impression."

i. 10.0-10.10 p.m. I twanged a small toy mandolin, the back of which was striped like a melon. Mention of serenades.

<i>Scoring Scheme III (i)</i>	<i>Score</i>
Mention of mandolin with full details - - - - -	20

<sup>1</sup> This item is only scored *once* whether it is recorded in intervals (i), (ii) or (iii).

Mention only of a mandolin, a banjo or guitar	-	-	-	17
Mention of a violin or other <i>stringed</i> instrument	-	-	-	10
Mention of any <i>other</i> musical instrument	-	-	-	8
Any impression of singing or of music	-	-	-	8
Any drawing approximating to shape of mandolin	-	-	-	6
Any mention of wires or sets of wires	-	-	-	4

ii. 10.10-10.20 p.m. Each agent and myself in turn wore a long salmon-coloured cardboard nose with spectacle rims attached. Mrs M. told a story about a Cambridge man's nose.

*Scoring Scheme III (ii)*

*Score*

Mention of long nose and spectacle rims	-	-	-	-	20
Mention of a long, large or grotesque nose	-	-	-	-	15
Mention of comic face with glasses	-	-	-	-	14
Mention of mask and spectacles (but not associated)	-	-	-	-	13
Mention of Punch or of a jester	-	-	-	-	12
Mention of a mask	-	-	-	-	10
A grotesque or comic face	-	-	-	-	10
Mention of spectacles, pince-nez or goggles only	-	-	-	-	10
Mention of Jack-in-box or marionettes	-	-	-	-	7

iii. 10.20-10.30 p.m. The outline of a Maltese cross was drawn several times by me.

*Scoring Scheme III (iii)*

*Score*

Drawing of Maltese cross or mention of it	-	-	-	-	20
Drawing of two triangles with their apexes touching	-	-	-	-	10
Drawing of a Swiss or star-like cross	-	-	-	-	10
Drawing of a <i>cross</i> , but in <i>curved lines</i>	-	-	-	-	8
Drawing of an isosceles triangle	-	-	-	-	5
Drawing of a very scalene triangle	-	-	-	-	3

IV. 31 October 1928; 355 percipients; agents: Prof. and Mrs M., Mr O., and S. G. S.

The notice sent out to percipients was identical except for *date* with the notice for 24 October.

i. 10.0-10.10 p.m. A toy *yellow plaster duck* wearing a black top hat and spectacles. It had orange webbed feet and an orange bill. The duck's neck was jointed and could be set at different angles. Mention of a lady who sent a goose to Browning.

*Scoring Scheme IV (i)*

*Score*

Duck with top hat and spectacles	-	-	-	-	20
Mention of a yellow duck only	-	-	-	-	14
Mention of a hat and spectacles only	-	-	-	-	12



Mention of a duck only but <i>not</i> yellow	-	-	-	-	12
Mention of a top hat or tall hat only	-	-	-	-	10
Mention of a <i>yellow</i> bird other than duck	-	-	-	-	10
A bird <i>with a crest</i> (unspecified)	-	-	-	-	10
Mention of goose, swan or chicken	-	-	-	-	8
Mention of a <i>man's black</i> hat, other than a top hat	-	-	-	-	8
Mention of a bird other than any mentioned above and not yellow	-	-	-	-	6
A yellow animal other than a bird	-	-	-	-	6
Mention of spectacles or goggles only	-	-	-	-	5
Any vivid impression of yellow (excluding yellow bird)	-	-	-	-	4
Any association with a bird ( <i>e.g.</i> eggs, feathers)	-	-	-	-	3
A casual mention of the colour yellow or gold	-	-	-	-	2

ii. 10.10-10.20 p.m. A large bell-shaped paper ornament not unlike a Chinese lantern made of blue-green paper and honeycombed with cells. The ornament folded up like a fan.

Scoring Scheme IV (ii)					Score
A bell-shaped blue paper object	-	-	-	-	20
Mention of a Chinese or Japanese lantern	-	-	-	-	10
Mention of a <i>bell-shaped</i> object <sup>1</sup>	-	-	-	-	10
Mention of honeycomb or cells or lattice work	-	-	-	-	10
Mention of a fan or of a fan shape	-	-	-	-	10
Mention of a church bell or hand bell or school bell (or <i>sound</i> of such a bell)	-	-	-	-	8
Mention of a paper hat	-	-	-	-	8
Any <i>vivid</i> impression of blue or green	-	-	-	-	8
A casual mention of blue or green	-	-	-	-	5
A mosaic pattern	-	-	-	-	4

iii. 10.20-10.30 p.m. A sketch was drawn several times in pencil by me of three sets of two concentric circles in triangular formation, the three outer circles touching in pairs externally. Mention of life-buoys and anchor-rings.

Scoring Scheme IV (iii)					Score
The diagram described above	-	-	-	-	20
Three circles in triangular formation	-	-	-	-	17
Two concentric circles	-	-	-	-	15
Two concentric hexagons, with sides parallel	-	-	-	-	12
Four concentric circles	-	-	-	-	9
Three circles intersecting in pairs	-	-	-	-	8
Two non-intersecting single circles	-	-	-	-	6
One circle	-	-	-	-	5

<sup>1</sup> *E.g.* Harebell. Mention of hand bell or church bell is here excluded.

V. 7 November 1928; 327 percipients; agents: Prof. and Mrs. M. Mr O., and S. G. S.

The notice sent to percipients was identical with those of 24 and 31 October except for date.

i. 10.0-10.10 p.m. I put on a brilliant scarlet conical dunce cap. Several sheets of scarlet paper were arranged in different parts of the room to convey a vivid impression of bright red.

Scoring Scheme V (i)							Score
Scarlet conical dunce cap	-	-	-	-	-	-	20
Mention of <i>red paper</i> or <i>red cloth</i>	-	-	-	-	-	-	16
Any vivid impression of <i>red</i>	-	-	-	-	-	-	15
Mention of a conical cap	-	-	-	-	-	-	13
Any <i>other conical</i> object	-	-	-	-	-	-	10
A <i>casual</i> mention of a red object	-	-	-	-	-	-	8
Mention of sheets or rolls of paper (not red)	-	-	-	-	-	-	8
Mention of something placed on the head	-	-	-	-	-	-	8
Mention of any vivid impression of colour other than red	-	-	-	-	-	-	6
Mention of a pyramidal object	-	-	-	-	-	-	5

ii. 10.10-10.20 p.m. A toy blacksmith which when wound up struck a piece of metal on an anvil with a hammer. Sparks flew from the anvil each time the hammer fell. The blacksmith was coloured a pale blue. The agents recited verses from "The Village Blacksmith."

Scoring Scheme V (ii)							Score
Mention of blacksmith with hammer or anvil	-	-	-	-	-	-	20
Mention of a blacksmith only	-	-	-	-	-	-	14
Mention of an anvil only	-	-	-	-	-	-	14
Mention of hammer or mallet only	-	-	-	-	-	-	10
Mention of blows or taps	-	-	-	-	-	-	10
Mention of a horseshoe	-	-	-	-	-	-	8
Mention of sparks or sparking fireworks	-	-	-	-	-	-	8
Mention of a mechanical toy	-	-	-	-	-	-	6
Mention of metal <sup>1</sup> (or object <i>obviously</i> made of metal)	-	-	-	-	-	-	4
Mention of a horse only	-	-	-	-	-	-	3

iii. Geometrical *control* experiment.

VI. 14 November 1928; 311 percipients; agents: Prof. and Mrs M., Mr O., and S. G. S.

The notice sent to percipients was identical with the notice for 24 and 31 October and 7 November except for date.

<sup>1</sup> This mention of metal of course *excludes* "hammer" or "horseshoe" or "anvil," for which the tariffs are given separately. For instance a mention of a "kettle" would gain four marks.

i. 10.0-10.10 p.m. A few sprays of artificial mistletoe with dark green leaves and white celluloid berries. Mention of Balder and the mistletoe, of the Druids who cut mistletoe with golden knives, of the fact that mistletoe grows more often on apple trees than on oaks, of G. K. Chesterton's poem on Balder.

Scoring Scheme VI (i)					Score
Mention of mistletoe or white berries + green leaves	-	-	-	-	20
Mention of <i>white berries only</i>	-	-	-	-	18
Mention of Druids or of Balder <sup>1</sup>	-	-	-	-	15
Mention of a <i>golden knife or dagger</i>	-	-	-	-	15
Mention of holly	-	-	-	-	15
Mention of berries <i>other than white (excluding holly)</i>	-	-	-	-	12
Mention of oak or of oak leaves or oak wood <sup>2</sup> or acorn	-	-	-	-	10
Mention of <i>pearls or white beads</i>	-	-	-	-	10
Mention of impressions connected with Christmas (e.g. Christmas tree, plum pudding, etc.)	-	-	-	-	10
Mention of beads but not white	-	-	-	-	8
Mention of green leaves <i>only (holly excluded)</i>	-	-	-	-	8
Mention of a knife but not golden	-	-	-	-	8
Mention of poetry	-	-	-	-	5
A <i>cluster of white flowers</i>	-	-	-	-	4
Mention of a bunch of grapes	-	-	-	-	4
Mention of <i>artificial plants or flowers</i>	-	-	-	-	4
Mention of other literature	-	-	-	-	3

ii. 10.10-10.20 p.m. A clockwork chocolate-coloured tin bear standing on its hind legs and holding a long hollow yellowish pole. When wound up by a key the bear slowly rotated on its hind legs.

Scoring Scheme VI (ii)					Score
Mention of bear with pole or stick	-	-	-	-	20
Mention of bear on its hind legs	-	-	-	-	15
Mention of <i>brown bear only</i>	-	-	-	-	12
Mention of a bear not brown or rampant	-	-	-	-	10
Any rampant animal other than bear	-	-	-	-	7
Mention of a pole only	-	-	-	-	6
Mention of stick or walking stick	-	-	-	-	4
Any clockwork toy	-	-	-	-	4
Any other <i>brown animal</i>	-	-	-	-	4
Any <i>brown object</i> not an animal	-	-	-	-	2

iii. 10.20-10.30 p.m. I drew a regular pentagon several times. Mention of haystack (shape of pentagon).

<sup>1</sup> These items "Druids" or "Balder" were provided for at the beginning but were never given by any percipient.

<sup>2</sup> A mention of oak furniture or wainscotting was here allowed.

## Scoring Scheme VI (iii)

Score

Drawing of a regular pentagon or mention of one	-	-	-	20
Mention of a haystack without reference to shape	-	-	-	10
Drawing of hexagon, octagon, heptagon, etc.	-	-	-	8

VII. 21 November 1928; 342 percipients; agents: Prof. and Mrs M., Mr O., and S. G. S.

The following notice was sent to the percipients: Wednesday, 21 November 1928. Three different objects will be shown, one each at 10.0 p.m., 10.10 p.m. (this second object will be a number of three figures), 10.20 p.m. (this third object will be a geometrical sketch. Please draw your impressions)."

i. 10.0-10.10 p.m. A small mechanical toy consisting of a man standing at a grindstone on which he holds a pair of scissors. When wound up a wheel revolved and the grindstone rotated rapidly, causing sparks to fly from the scissors. The man's left leg worked the treadle, which moved up and down rapidly.

## Scoring Scheme VII (i)

Score

Mention of scissors grinder or man with grindstone	-	-	-	-	-	20
Mention of scissors only	-	-	-	-	-	12
Mention of a rotating wheel	-	-	-	-	-	12
Mention of other rotation	-	-	-	-	-	8
Mention of showers of sparks	-	-	-	-	-	8

ii. 10.10-10.20 p.m. The number 424 drawn in violet crayon.

## Scoring Scheme VII (ii)

Score

The number 424 <sup>1</sup>	-	-	-	-	-	-	20
42- or 4-4 or 2-4	-	-	-	-	-	-	12
4- or -2- or -4	-	-	-	-	-	-	6
If 4's are written 4 give bonus	-	-	-	-	-	-	+3

iii. 10.20-10.30 p.m. A triangle nearly equilateral drawn in black crayon.

## Scoring Scheme VII (iii)

Score

Drawing of an equilateral triangle	-	-	-	-	-	20
Triangle nearly isosceles but not equilateral	-	-	-	-	-	17
A triangle drawn but very scalene	-	-	-	-	-	15
Several triangles or pair of joined triangles or triangle mixed with other figures (e.g. inscribed in a circle, etc.)	-	-	-	-	-	6

<sup>1</sup> The representations 42-, 4-4 or -24 must be read to mean that the two given digits were correct, but the digit occupying the position of the dash was incorrect. 4- or -2- or -4 imply that one digit only was correct, while the two occupying the positions of the dashes were incorrect.

VIII. 28 November 1928; 313 percipients; agents: Prof. and Mrs M., Mr O., and S. G. S.

The notice sent out to percipients was identical with that for 21 November except for the date.

i. 10.0-10.10 p.m. I exhibited three large yellow chrysanthemums with small green leaves and flowers of the incurved variety. A strip of bright yellow paper 10' long by 1' was unrolled and placed conspicuously in the room.

<i>Scoring Scheme VIII (i)</i>						<i>Score</i>
Mention of yellow chrysanthemums	-	-	-	-	-	20
Mention of <i>yellow flowers</i>	-	-	-	-	-	15
Any very <i>vivid</i> impression of yellow ( <i>not flowers</i> )	-	-	-	-	-	14
Mention of chrysanthemums but not yellow	-	-	-	-	-	12
Sheets of fabric or of paper unrolled	-	-	-	-	-	8
Casual mention of yellow or orange object ( <i>not flowers</i> )	-	-	-	-	-	6
Mention of flowers but <i>not</i> yellow	-	-	-	-	-	5

ii. 10.10-10.20 p.m. The number 444 was drawn in blue crayon by me.

<i>Scoring Scheme VIII (ii)</i>						<i>Score</i>
444 or $\frac{4}{4}4$ <sup>1</sup>	-	-	-	-	-	20
44- or -44 or 4-4	-	-	-	-	-	12
4- or -4- or -4-	-	-	-	-	-	6
For writing $\frac{4}{4}$ as 4 <i>bonus</i>	-	-	-	-	-	+3

iii. 10.20-10.30 p.m. Geometrical sketch of three concentric circles drawn in blue crayon by me.

<i>Scoring Scheme VIII (iii)</i>						<i>Score</i>
<i>Three concentric circles</i>	-	-	-	-	-	20
For drawing <i>concentric</i> circles, <sup>2</sup> but more than three or less than three	-	-	-	-	-	15
One circle only drawn <i>and no additions</i>	-	-	-	-	-	10
For drawing a single circle inside a second figure	-	-	-	-	-	6
For drawing two or more circles <i>not</i> concentric but external or intersecting	-	-	-	-	-	5
One circle with triangle or line figure superadded	-	-	-	-	-	3

IX. 5 December 1928; 356 percipients; agents: Prof. and Mrs M., Mr O., and S. G. S. In addition it was arranged that 23 of the percipients should act as agents for the first interval (10.0-10.10 p.m.).

To each of the additional agents a sealed envelope was sent

<sup>1</sup> For explanation of the dashes see the footnote on page 287.

<sup>2</sup> A slight *eccentricity* in placing the circles would be allowed.

containing a picture postcard (Zoo series) showing a *kangaroo*. The envelope was posted together with an accompanying notice to reach the agent as far as possible on 5 December. The envelope was marked "To be opened at 10.0 p.m. in the presence of a witness."

The notice read as follows: "Special experiment for 5 December 1928. For the first ten minutes, from 10.0-10.10 p.m., we are asking you kindly to act this week as *agent* instead of percipient. Will you therefore please keep the enclosed envelope in a safe place and unopened till 10.0 p.m. on Wednesday, 5 December. It should then be opened in the presence of a witness. Will you therefore concentrate on the subject of the enclosure and from 10.0-10.10 p.m. try to transmit instead of receive impressions. (A number of people in different parts of the country will be concentrating on the same subject.) At the end of ten minutes cease to concentrate and continue recording impressions in the usual way for the rest of the half hour. When sending your impressions will you also kindly return the envelope in which you receive this, with the signature of the witness as to the time when it was opened.

Sgnd. S. G. SOAL."

The following notice was sent out to all percipients: "Wednesday, 5 December 1928. Three different objects will be shown: 10.0 p.m. Please record all impressions. 10.10 p.m. The second object will be a number of three figures. Please give *only* the *strongest* impression. 10.20 p.m. The third object will be a *capital letter of the alphabet*. Please record your impressions but give *only* the *strongest*.

Sgnd. S. G. SOAL."

i. 10.0-10.10 p.m. A picture postcard (Zoo series), "The Kangaroo." There was mention by the agents that the kangaroo when cornered can tear dogs to pieces, also mention of its powerful tail—a blow from which can kill a man, mention of marsupials, duck-billed platypus. There was that evening a cartoon in the *Evening Standard* showing a kangaroo, which, however, was not very conspicuous.

#### Scoring Scheme IX (i)

	Score						
Mention of a kangaroo	-	-	-	-	-	-	20
Mention of a marsupial	-	-	-	-	-	-	18
Mention of Australia (or associations)	-	-	-	-	-	-	12
Mention of a <i>rabbit</i> or <i>rat</i> <sup>1</sup>	-	-	-	-	-	-	10
Mention of an animal's <i>tail</i> <sup>1</sup>	-	-	-	-	-	-	10

<sup>1</sup> It will be observed that the mention of *rabbit* or *rat* is provided for by the scheme with a tariff of 10 marks, while 10 marks are also allotted to any impression drawing special attention to an animal's *tail*. But it will be seen that no tariff is provided for a percipient who mentions *both* these items. It must be inferred that actually no percipient did hit upon such a combina-

Mention of an <i>animal fighting</i> or of <i>hunting</i> an animal	-	10
Mention of a deer-like animal	- - - - -	8
Mention of an animal being killed	- - - - -	7
Mention of any <i>animal sitting on its haunches</i>	- - - - -	5
Mention of a postcard only	- - - - -	5
Mention of an animal with <i>no resemblance</i> to kangaroo and not on haunches	- - - - -	3

ii. 10.10-10.20 p.m. The number 888 in violet crayon and in large digits.

<i>Scoring Scheme IX (ii)</i>										<i>Score</i>
888	-	-	-	-	-	-	-	-	-	20
88- or 8-8 or -88	-	-	-	-	-	-	-	-	-	12
8- or -8- or -8	-	-	-	-	-	-	-	-	-	6

iii. 10.20-10.30 p.m. The capital letter F in violet crayon.

<i>Scoring Scheme IX (iii)</i>										<i>Score</i>
F guessed	-	-	-	-	-	-	-	-	-	20
E guessed	-	-	-	-	-	-	-	-	-	10
P guessed	-	-	-	-	-	-	-	-	-	6

X. 12 December 1928; 301 percipients; agents: Prof. and Mrs M., Mr O., S. G. S., and 23 additional agents.

The notice sent to the additional agents was practically identical except for date with that sent out for 5 December. The sealed envelope contained a picture postcard of the Zoo series, "The Alligator."

The following notice was sent out to all percipients: "Wednesday, 12 December 1928. Three different objects will be shown: 10.0 p.m. Please record all impressions. 10.10 p.m. The second object will be a capital letter of the alphabet. 10.20 p.m. The third object will be a geometrical figure.

Sgnd. S. G. SOAL."

i. 10.0-10.10 p.m. A picture postcard of the Zoo series, "The Alligator," showing an alligator with mouth open. The agents noted the pointed tail and the rows of teeth. The agents at 2 Adelaide Road gazed at the postcard for one minute only (10.0-10.1 p.m.) and then let it pass from their minds.

tion. The scoring scheme in fact was in all cases *amplified* to meet the different types of guesses that were met with in examining the percipients' records. Had I come across such a combination as that mentioned above, a special place in the scheme would have been arranged for it and the tariff thus allocated applied to any other similar case that arose.

Scoring Scheme X (i)						Score
Mention of crocodile or alligator	-	-	-	-	-	20
Mention of shark or pike or similar large fish <sup>1</sup>	-	-	-	-	-	12
Mention of an open jaw with teeth or rows of teeth only	-	-	-	-	-	12
Mention of an open mouth without mention of teeth	-	-	-	-	-	10
Mention of any other reptile (e.g. lizard, snake, frog)	-	-	-	-	-	10
Feeling of repulsion or fear or horror <sup>2</sup>	-	-	-	-	-	8
Mention of "picture of an animal"	-	-	-	-	-	5

ii. 10.10-10.20 p.m. A large capital S in blue crayon.

Scoring Scheme X (ii)						Score
A capital S in blue	-	-	-	-	-	20
A capital S without mention of blue	-	-	-	-	-	17

iii. 10.20-10.30 p.m. Control experiment. No object transmitted.

XI. 19 December 1928; 288 percipients; agents: Prof. and Mrs M., Mr O., S. G. S., and 20 additional agents.

The following notice was posted to the additional agents together with a sealed envelope: "Special experiment for 19 December 1928. For the second ten minutes, from 10.10-10.20 p.m., we are asking you again to act this week as *agent* instead of percipient. Will you therefore concentrate on the subject of the enclosure and try to *transmit* instead of receive impressions. (A number of people in different parts of the country will be concentrating on the same subject.) At the end of ten minutes cease to concentrate and continue recording impressions in the usual way for the rest of the half hour. When sending your impressions will you also kindly return the envelope in which you receive this, with the signature of a witness as to the time when it was opened.

Sgnd. S. G. SOAL."

The following notice was sent to all percipients: "Wednesday, 19 December 1928. 10.0 p.m. Imagine a *black cloth* which covers an object on a small round brass-topped table. At 10.2 p.m. I shall *raise the cloth*. Imagine the uncovering and record your impressions of the object disclosed. 10.10 p.m. Record all impressions. 10.20 p.m. The third object will be a geometrical figure. Please draw your impressions.

Sgnd. S. G. SOAL."

i. 10.0-10.10 p.m. The black cloth which was raised at 10.2 p.m. revealed a small toy organ grinder who when wound up turned the handle of a toy street piano, at the same time moving his head and

<sup>1</sup> Any savage fish with rows of teeth like a crocodile would be included here.

<sup>2</sup> Of course if a percipient mentioned *both* (a) shark and (b) fear he would only be given the marks due to (a), since (b) is a natural corollary to getting impression (a).



shoulders towards the organ and away from it. A few notes were emitted and a toy monkey danced on the top of the organ, dithering up and down and turning round. The organ grinder wore a grey hat like a soldier's tin helmet.

<i>Scoring Scheme XI (i)</i>						<i>Score</i>
Mention of organ grinder and monkey	-	-	-	-	-	20
Mention of barrel organ alone	-	-	-	-	-	16
Mention of a musical box	-	-	-	-	-	14
Mention of someone turning a handle	-	-	-	-	-	12
Mention of a monkey or monkeys only	-	-	-	-	-	12
Mention of a man nodding or swaying his head	-	-	-	-	-	10
Mention of a little dancing man or figure	-	-	-	-	-	10
Mention of dancing in general (more than one person)	-	-	-	-	-	8
Mention of musical instrument or music	-	-	-	-	-	8
Mention of an <i>Italian</i> impression (e.g. macaroni or map of Italy, etc.)	-	-	-	-	-	6
Mention of some kind of wheeled cart	-	-	-	-	-	6
Mention of a workable model or clockwork toy only	-	-	-	-	-	4

ii. 10.10-10.20 p.m. A picture postcard showing a dog wearing a cap and holding a clay pipe in its mouth. On the floor was a half-open box of matches.

<i>Scoring Scheme XI (ii)</i>						<i>Score</i>
Dog with cap and pipe	-	-	-	-	-	20
Mention of a dog in any kind of hat	-	-	-	-	-	15
Mention of a dog with a pipe	-	-	-	-	-	15
Mention of a man in a hat and smoking a pipe	-	-	-	-	-	12
Mention of a dog dressed up in any way, i.e. wearing spectacles	-	-	-	-	-	12
Mention of a dog only	-	-	-	-	-	10
Mention of a man smoking a pipe	-	-	-	-	-	10
Mention of any other animal dressed up, e.g. elephant with spectacles	-	-	-	-	-	8
Mention of a pipe only	-	-	-	-	-	8
Mention of a cap only	-	-	-	-	-	8
Mention of a box of matches	-	-	-	-	-	8
Mention of a hat only	-	-	-	-	-	6

iii. 10.20-10.30 p.m. Geometrical control experiment. No object shown.

XII. 9 January 1929; 298 percipients; agents: Prof. and Mrs M. and 29 additional agents.

The following notice was sent to the additional agents: "Special experiment for 9 January 1929. For the first five minutes, i.e. from

10.0 to 10.5 p.m., we are asking you to act this week as *agent* instead of percipient. Will you therefore concentrate on the subject of the enclosure and try to *transmit* instead of to receive impressions. (A number of people in different parts of the country will be concentrating on the same subject.) At the end of five minutes cease to concentrate and think no more of what is in the enclosure. *In fact put the experiment from your mind altogether until 10.20.* At 10.20 begin to record impressions of the third object in the usual way. The third object is a geometrical impression. When sending your impressions will you also kindly return the envelope in which you receive this, with the signature of a witness as to the time when it was opened.

Sgnd. S. G. SOAL."

The following notice was sent to percipients: "Wednesday, 9 January 1929. 10.0 p.m. Imagine a *black cloth* which covers an object on a small round brass-topped table. At 10.2 p.m. I shall *raise the cloth*. Imagine the uncovering and record your impressions of the object disclosed. 10.10 p.m. The second object will be a number of three figures. Give only your strongest impression. 10.20 p.m. The third object will be a geometrical figure. Please *draw* your impressions.

Sgnd. S. G. SOAL."

i. 10.0-10.10 p.m. A red apple was concealed by Mrs M. under a black cloth which was raised at 10.2 p.m. The agents concentrated on the object till 10.10 p.m.

<i>Scoring Scheme XII (i)</i>						<i>Score</i>
Mention of a <i>red</i> apple or <i>red</i> ball	-	-	-	-	-	20
Mention of <i>green</i> apple or apple with no colour specified	-	-	-	-	-	15
Mention of an orange or oranges	-	-	-	-	-	10
Mention of a coloured globe of any kind ( <i>not</i> red)	-	-	-	-	-	8
Mention of other fruit or fruit unspecified	-	-	-	-	-	5
Casual mention of <i>RED object</i> NOT <i>globular</i>	-	-	-	-	-	5

ii. 10.10-10.20 p.m. A sealed envelope which had been posted to Prof. and Mrs M. by me containing a card with the number 581 in black crayon was opened at 10.10 p.m. by Mrs M. Concentration was carried out till 10.20 p.m.

<i>Scoring Scheme XII (ii)</i>						<i>Score</i>
The number 581	-	-	-	-	-	20
58— or —81 or 5—1	-	-	-	-	-	12
5— or —8— or —1	-	-	-	-	-	6

iii. 10.20-10.30 p.m. Control experiment. No transmission.

XIII. 16 January 1929; 284 percipients; agents: Prof. and Mrs M., the sister of Mrs M., and 23 additional agents.

The notice sent to the percipients and the additional agents was, except for date, identical with that sent for 9 January 1929.

i. 10.0-10.10 p.m. Mrs M. chose as object of experiment a *Chinese cup and saucer* of white and terra-cotta colouring.

<i>Scoring Scheme XIII (i)</i>	<i>Score</i>
Mention of Chinese cup and saucer - - - -	20
Any impression connected with <i>China</i> (country) - -	14
Mention of an ordinary cup and saucer - - - -	12
Mention of a cup alone or saucer alone - - - -	10
Mention of tea or teapot or tea cosy or of drinking tea -	10
Any <i>Eastern</i> vase or vessel - - - -	10
Mention of <i>China</i> pottery - - - -	8
Any impression of the East (but not of a jar or vessel) -	8
Other mentions of crockery - - - -	6
Any drinking vessel other than the preceding - - -	6
Any other vessel, pan, iron jar, etc. (not used for drinking out of) - - - -	3

ii. 10.10-10.20 p.m. An envelope sealed previously by me and posted to Mrs M. was opened by the latter at 10.10 p.m. It contained a white card bearing the number 555 in black crayon. Concentration was carried out from 10.10-10.20 p.m.

<i>Scoring Scheme XIII (ii)</i>	<i>Score</i>
The number 555 - - - -	20
55- or 5-5 or -55 - - - -	12
5- or -5- or -5 - - - -	6

iii. 10.20-10.30 p.m. A sealed envelope posted by me to Mrs M. was opened by her at 10.20 p.m. It contained a white card on which was drawn a circle in which a black equilateral triangle was inscribed.

<i>Scoring Scheme XIII (iii)</i>	<i>Score</i>
Drawing of <i>black</i> triangle in a circle - - - -	20
Triangle in a circle but not black - - - -	15
Mention of a <i>black</i> triangle alone - - - -	14
A triangle and circle where triangle is not properly placed with regard to circle - - - -	10
A circle with a line figure <i>inscribed</i> other than a triangle -	8
Drawing of an ordinary triangle alone - - - -	6
Drawing of a circle alone - - - -	6

XIV. 23 January 1929; 275 percipients; agents: Prof. and Mrs M. and 25 additional agents took part.

The notice sent out to the additional agents was identical with that sent out for 16 January with the exception that the *third* object

was stated to be a "playing card" instead of a "geometrical impression."

The notice sent out to the percipients was as follows: "Wednesday, 23 January 1929. Three different objects will be shown, one each at: 10.0 p.m. Please record all impressions.—10.10 p.m. The second object will be a number of three figures.—10.20 p.m. The third object will be a *playing card*."

i. 10.0-10.10 p.m. The chosen agents and Prof. and Mrs M. were sent a sealed envelope containing a picture postcard showing a bright red full-blown rose with pale green leaves and one opening bud. The envelope was to be opened at 10.0 p.m.

Scoring Scheme XIV (i)					Score
Mention of <i>red</i> rose and green leaves	-	-	-	-	20
Mention of <i>red</i> rose but no leaves	-	-	-	-	17
Mention of a <i>red</i> flower but not a rose	-	-	-	-	15
Mention of a rose but <i>not</i> red	-	-	-	-	10
Mention of flowers red mixed with white or yellow	-	-	-	-	9
Any very <i>vivid</i> impression of red object	-	-	-	-	8
Mention of flower not red and not a rose	-	-	-	-	6
Casual mention of a red object	-	-	-	-	4
Mention of green leaves or foliage only	-	-	-	-	4
Impression of a green object other than foliage	-	-	-	-	2

ii. 10.10-10.20 p.m. Mrs M. opened a sealed envelope at 10.10 p.m. containing a white card with the number 491 in black crayon.

Scoring Scheme XIV (ii)					Score
The number 491 or <i>491</i>	-	-	-	-	20
49- or -91 or 4-1	-	-	-	-	12
4- or -9- or -1	-	-	-	-	6
If <i>4</i> is given as 4 allowed bonus	-	-	-	-	+3

iii. 10.20-10.30 p.m. Mrs M. opened at 10.20 p.m. a sealed envelope sent by me and containing the 2 of Diamonds with red pips on a plain white card.

Scoring Scheme XIV (iii)					Score
Card entirely correct	-	-	-	-	20
Value and colour correct	-	-	-	-	18
Value only correct	-	-	-	-	15
Suit and rank correct	-	-	-	-	10
Only suit correct	-	-	-	-	8
Colour and rank correct	-	-	-	-	6
Colour only correct	-	-	-	-	4
Rank only correct	-	-	-	-	2

XV. 30 January 1929; 294 percipients; agents: Prof. and Mrs M., Mrs Lewis, a sister of Mrs M., Mrs E. H. and her sister, Mr O., S. G. S., and 29 additional agents.

The following notice was sent out to the additional agents: "Special experiment for 30 January 1929. For the first ten minutes, from 10.0 to 10.10 p.m., please record all impressions in the usual way. For the second ten minutes, *i.e.* from 10.10-10.20 p.m., we are asking you to act this week as *agent* instead of *percipient*. Will you therefore at 10.10 p.m. concentrate on the subject of the enclosure and try to *transmit* instead of to receive impressions. (A number of people in different parts of the country will be concentrating on the same subject.) At the end of five minutes, *i.e.* at 10.15 p.m., cease to concentrate and think no more of what is on the enclosure. *In fact put the experiment from your mind altogether until 10.20.* At 10.20 begin to record impressions of the third object in the usual way. The third object is a capital letter of the alphabet. When sending your impressions will you also kindly return the envelope in which you receive this, with the signature of a witness as to the time when it was opened. Sgnd. S. G. SOAL."

The following notice was sent to percipients: "Wednesday, 30 January 1929. Three different objects will be shown, one each at: 10.0 p.m. Please record all impressions.—10.10 p.m. This second object will be a number of three figures.—10.20 p.m. This third object will be a capital letter of the alphabet."

i. 10.0-10.10 p.m. The agents concentrated on the toy brown bear used in Expt. XXVII (first series, 1927-1928). The air-ball on this occasion, however, did not operate very well.

Scoring Scheme XV (i)								Score
Bear with a ball	-	-	-	-	-	-	-	20
Mention of bear with soft fur or a brown bear or black bear	-	-	-	-	-	-	-	14
Mention of a bear only	-	-	-	-	-	-	-	12
Mention of a <i>furry</i> animal (not a bear)	-	-	-	-	-	-	-	8
Mention of a ball only	-	-	-	-	-	-	-	8
Mention of fur only but no animal	-	-	-	-	-	-	-	6
Mention of a toy animal moving about	-	-	-	-	-	-	-	4
Mention of a <i>fierce</i> animal other than bear	-	-	-	-	-	-	-	4
Mention of a circus	-	-	-	-	-	-	-	3

ii. 10.10-10.20 p.m. The group at Adelaide Road together with the additional agents concentrated on a postcard on which was drawn in red and black ink (double lines) the number 222.

Scoring Scheme XV (ii)								Score
222	-	-	-	-	-	-	-	20
22- or 2-2 or -22	-	-	-	-	-	-	-	12
2 — or -2- or —2	-	-	-	-	-	-	-	6

iii. 10.20-10.30 p.m. The Adelaide Road group concentrated on the letter H drawn on an envelope in blue-black ink.

	<i>Scoring Scheme XV (iii)</i>							<i>Score</i>
Letter H	-	-	-	-	-	-	-	20
Letter A	-	-	-	-	-	-	-	6

XVI. 6 February 1929; 277 percipients; agents: Prof. and Mrs M., Mr O., S. G. S., and 25 additional agents.

The additional agents were sent a sealed envelope containing a playing card with plain white back showing the 4 of Spades in black on a white background. They were asked to open the envelope at 10.0 p.m. on 6 February and to concentrate on the contents from 10.0-10.5 p.m. At 10.10 p.m. they were to begin recording impressions in the usual way for the last two objects, ii and iii.

Percipients were notified: "(i) The first object (10.0-10.10 p.m.) will be a playing card. (ii) 10.10-10.20 p.m. The second object will be a number of three figures. (iii) 10.20-10.30 p.m. The third object will be a geometrical sketch. Please draw your impressions."

i. 10.0-10.10 p.m. The 4 of Spades—black pips on a white card. White back.

*Scoring Scheme XVI (i)*

The same as in XIV (iii).

ii. 10.10-10.20 p.m. The number 777 in black crayon.

	<i>Scoring Scheme XVI (ii)</i>							<i>Score</i>
777	-	-	-	-	-	-	-	20
77-, 7-7, -77	-	-	-	-	-	-	-	12
7—, -7—, —7	-	-	-	-	-	-	-	6

iii. A control experiment. No attempt at transmission.

XVII. 13 February 1929; 276 percipients; agents: Prof. and Mrs M., Mr O., and 28 additional agents.

Previous to 13 February a sealed envelope had been sent to the additional agents containing a plain white postcard, on one side of which was drawn the capital W in red ink. The additional agents were asked to concentrate on the contents of the envelope from 10.0-10.5 p.m. and to commence recording impressions for (ii) and (iii) at 10.10 p.m.

The following notice was sent out to the percipients: "Wednesday, 13 February 1929. Three different objects will be shown, one each at: 10.0 p.m. The first object will be a letter of the alphabet.—10.10 p.m. The second object will be a number of three figures.—10.20 p.m. Please record all impressions."

i. 10.0-10.10 p.m. The agents concentrated on the letter W in red on a white card.

<i>Scoring Scheme XVII (i)</i>										<i>Score</i>
Letter W	-	-	-	-	-	-	-	-	-	20
Letter M	-	-	-	-	-	-	-	-	-	10
Letter V or U	-	-	-	-	-	-	-	-	-	8
Letter N	-	-	-	-	-	-	-	-	-	5
If letter is stated to be in <i>red</i> give <i>bonus</i>	-	-	-	-	-	-	-	-	-	+3

ii. 10.10-10.20 p.m. A control experiment. No attempt at transmission.

iii. 10.20-10.30 p.m. Mrs M. opened at 10.20 p.m. a large sealed envelope sent by me which contained a calendar with a large picture of an Alsatian dog. The dog had brown fur splashed with white and a red lolling tongue. Attached to the calendar was a piece of red ribbon.

<i>Scoring Scheme XVII (iii)</i>										<i>Score</i>
Mention of dog with lolling tongue	-	-	-	-	-	-	-	-	-	20
Mention of an Alsatian dog	-	-	-	-	-	-	-	-	-	17
Any <i>animal</i> other than dog with protruding tongue	-	-	-	-	-	-	-	-	-	15
Mention of dog with brown fur	-	-	-	-	-	-	-	-	-	12
Mention of a wolf	-	-	-	-	-	-	-	-	-	12
Mention of a dog simply	-	-	-	-	-	-	-	-	-	10
Mention of a tongue, but not protruding from animal's mouth	-	-	-	-	-	-	-	-	-	10
Mention of animal + red ribbon	-	-	-	-	-	-	-	-	-	9
Mention of a fox	-	-	-	-	-	-	-	-	-	8
Mention of a calendar	-	-	-	-	-	-	-	-	-	8
Mention of four-footed brown animal splashed with white	-	-	-	-	-	-	-	-	-	6
Mention of fur only ( <i>e.g.</i> ladies' fur)	-	-	-	-	-	-	-	-	-	4

XVIII. 20 February 1929; 284 percipients; agents: Prof. and Mrs M., S. G. S., and 29 additional agents.

A sealed envelope containing a playing card (6 of Clubs) had been sent previously to the additional agents with instructions to break the seal at 10.0 p.m. and concentrate on the contents from 10.0-10.10 p.m. The pips were in blue-black ink on a plain white card. The chosen agents were asked to cease concentration at 10.10 p.m. and to record impressions in the ordinary way for objects ii and iii.

The instructions sent to the percipients were as follows: "Wednesday, 29 February 1929. Three different objects will be shown, one each at: 10.0 p.m. The first object will be a playing card.—10.10 p.m. The second object will be a number of three figures.—10.20 p.m. The third object will be a letter of the alphabet."

i. 10.0-10.10 p.m. The three agents at Adelaide Road concentrated from 10.0-10.10 p.m. on a playing card, the 6 of Clubs.

*Scoring Scheme XVIII (ii)*

The same as in XIV (iii).

ii, iii. Control experiments. No attempts at transmission.

XIX. 27 February 1929; 266 percipients; agents: Prof. and Mrs M., Mr O., and 27 additional agents.

A sealed envelope containing a playing card, the 5 of Hearts (red pips on a plain white card), had been sent previously to the additional agents with instructions to break the seal at 10.0 p.m. and to concentrate on the enclosure from 10.0 to 10.10 p.m. They were asked to cease concentration at 10.10 p.m. and to record impressions for objects ii and iii in the usual way. On 26 February a sealed envelope containing the same card (the 5 of Hearts) was sent to Mrs M. with instructions to open the envelope in the presence of a witness at 10 p.m. on 27 February.

The instructions sent to percipients were identical except for date with those sent out on 20 February.

i. 10.0-10.10 p.m. A playing card, 5 of Hearts.

*Scoring Scheme XIX (i)*

The same as in Expt. XIV (iii).

ii, iii. Control experiments. No attempts at transmission.

XX. 6 March 1929; 253 percipients; agents: Prof. and Mrs M., S. G. S., and 23 additional agents.

A sealed envelope was sent to each of the additional agents containing a white card on which was written in red ink the following lines from Blake's poem "The Tiger":

"Tiger, tiger burning bright,  
In the forests of the night,  
What immortal hand or eye  
Could frame thy fearful symmetry?"

The additional agents were requested to break the seal at 10.0 p.m. on 6 March and to concentrate on the contents from 10.0-10.5 p.m. Concentration was to cease at 10.5 p.m. and at 10.10 they were to begin recording impressions for objects ii and iii in the usual way.

The following notice was sent to the percipients: "Wednesday, 6 March 1929. Three different objects will be shown, one each at: 10.0 p.m. Think over and write out a verse of poetry of *not more* than five lines, and record all impressions.—10.10 p.m. The second object will be a number of three figures.—10.20 p.m. The third object will be a playing card. Sgnd. S. G. SOAL."

i. 10.0-10.10 p.m. The first verse (quoted above) from Blake's poem "The Tiger."



<i>Scoring Scheme XX. (i)</i>				<i>Score</i>
Quotation of a verse from the poem "The Tiger"	-	-	-	20
Any mention of a tiger	-	-	-	15
Mention of any animal's eyes shining in dark	-	-	-	13
Mention of stars or fire shining through a dark night	-	-	-	12
Any mention of a <i>forest</i> or <i>jungle</i> at night	-	-	-	10
Mention of a fire or burning	-	-	-	8
Mention of any sort of large cat, lion, leopard, etc.	-	-	-	8
Mention of night or darkness only	-	-	-	6
Mention of a wood or forest only	-	-	-	5

ii, iii. Control experiments. No attempts at transmission.

XXI. 13 March 1929; 252 percipients; agents: Prof. and Mrs M. and S. G. S.

The following notice was sent to percipients: "Wednesday, 13 March 1929. Three different objects will be shown, one each at: 10.0 p.m. Imagine an attaché case placed on a round brass-topped table. At 10.2 p.m. the case will be opened and an object taken out. Imagine the opening of the case and record your impressions of the object.—10.10 p.m. The second object will be a playing card.—10.20 p.m. The third object will be a capital letter of the alphabet. Sgnd. S. G. SOAL."

i. At 10.2 p.m. the attaché case was opened by me and a *yellow plaster duck* was produced. It had an orange bill and orange webbed feet. I produced also a small toy green finch which when wound up by means of a key moved about and pecked on the table.

<i>Scoring Scheme XXI (i)</i>				<i>Score</i>
Mention of a yellow duck and a pecking bird	-	-	-	20
Mention of a yellow duck only	-	-	-	18
Mention of a bird pecking	-	-	-	15
Mention of a duck but not yellow	-	-	-	15
Mention of a <i>yellow bird</i> other than a duck	-	-	-	12
Mention of a bird with orange bill or webbed feet	-	-	-	10
Mention of a goose or a swan or other water bird	-	-	-	8
Mention of a bird other than the above	-	-	-	6
Vivid impression of yellow or orange object	-	-	-	5
Mention of eggs or feathers only	-	-	-	3
Casual mention of a yellow object	-	-	-	3
Mention of a clockwork toy	-	-	-	3

ii, iii. Control experiments. No attempt at transmission.

XXII. 20 March 1929; 247 percipients; agents: Prof. and Mrs M., transmitting from Brockweir, Monmouthshire; Mr O. from

Kingston-on-Thames; and S. G. S. from Prittlewell, Essex, together with 43 additional agents.

The additional agents were sent a sealed envelope containing a reproduction of the Japanese print "A bird standing on a human skull," which was shown originally in the B.B.C. experiment. The agents were asked to concentrate on the subject of the enclosure from 10.0 to 10.10 p.m. and then to record their impressions for objects ii, iii and iv in the usual way. Similar reproductions were sent to Prof. and Mrs M. and to Mr O. in sealed envelopes, to be opened at 10.0 p.m. on March 20.

The following notice was sent to percipients: "Wednesday, 29 March 1929. Four different objects will be shown, one each at: 10.0 p.m. Please record all impressions.—10.10 p.m. The second object will be a playing card.—10.20 p.m. The third object will be a capital letter of the alphabet.—10.25 p.m. The *fourth* object will be a number of three figures. Sgnd. S. G. SOAL."

i. 10.0-10.10 p.m. The Japanese print of a bird standing on a skull (see *Proceedings*, xxxviii. 2).

<i>Scoring Scheme XXII (i)</i>										<i>Score</i>
Mention of a bird standing on or near a skull	-	-	-	-	-	-	-	-	-	20
Mention of bird and skull, but apparently unconnected with each other	-	-	-	-	-	-	-	-	-	15
Mention of a skull only	-	-	-	-	-	-	-	-	-	12
Mention of a skeleton only	-	-	-	-	-	-	-	-	-	10
Impression of a bird perched on some object other than a skull	-	-	-	-	-	-	-	-	-	10
An impression connected with death	-	-	-	-	-	-	-	-	-	8
Mention of a bird only	-	-	-	-	-	-	-	-	-	6
Impression of horror or repulsion	-	-	-	-	-	-	-	-	-	6
A largish white oval-shaped object ( <i>e.g.</i> a large white egg)	-	-	-	-	-	-	-	-	-	4

ii, iii, iv. Control experiments. No attempts at transmission.

XXIII. 27 March 1929; 262 percipients; agents: Prof. and Mrs M. at Brockweir, Monmouthshire; S. G. S. at Prittlewell; and 68 additional agents.

A sealed envelope was sent to each of the additional agents and to Prof. and Mrs M. containing a playing card (3 of Hearts), with instructions to break the seal at 10.0 p.m. The agents were asked to concentrate on the contents of the envelope from 10.0-10.10 p.m. and then to record their impressions for objects ii and iii in the usual way.

The percipients had been notified that: (i) 10.0 p.m. The first object will be a playing card. (ii) 10.10 p.m. The second object will be a number of three figures. (iii) 10.20 p.m. The third object will be a capital letter of the alphabet."

i. 10.0-10.10 p.m. A playing card, the 3 of Hearts. The pips were red on a plain white card.

*Scoring Scheme XXIII (i)*

The same as in Expt. XIV (iii).

ii, iii. Control experiments. No attempts at transmission.

# THE OBJECT TABLES XXXIII<sup>1</sup>

10 October—(i) 10.0-10.10 p.m. Red artificial poppies.

NOTE.—On the dates printed in clarendon other vivid red objects were shown.

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of poppies.	1	—	—	—	1	1	2	—	—	—	—	—	—	—	—	—	—	—	Prev.
	1	—	—	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—	Post.
2. Mention of artificial red flowers.	—	—	—	—	1	—	—	—	—	1	—	1	—	—	—	—	—	—	Prev.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Post.
3. Total mentions of artificial flowers, red or otherwise.	—	—	—	—	1	1	—	—	—	1	—	1	1	—	1	—	1	—	Prev.
	2	1	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	Post.
4. Total mentions of red flowers (including 1, 2 and 3).	8	1	—	1	2	3	1	1	1	2	—	2	—	4	2	1	2	2	Prev.
	7	3	3	—	2	3	—	—	—	—	1	—	—	—	—	—	—	—	Post.
5. Total mentions of flowers of all descriptions (including 1, 2, 3 and 4).	37	24	13	19	14	19	21	10	20	9	10	10	11	17	20	19	16	17	Prev.
	53	32	21	19	17	14	—	—	—	—	15	1	1	—	1	—	—	—	Post.
6. Total mentions of all red objects (including those in 1, 2, 3, 4 and 5).	30	26	12	15	15	22	12	9	13	12	11	13	14	9	12	14	11	9	Prev.
	28	26	16	12	13	15	1	1	2	2	14	1	2	—	—	1	—	—	Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> Throughout the tables figures in italics represent stray impressions recorded in a ten-minute interval in which a geometrical or other statistical test was carried out.

TABLE XXXIII (continued)

10 October—(ii) 10.10-10.20 p.m. A toy tomahawk.

Items	October				November				December				January		Feb.		March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of axe, chopper, hatchet, or of chopping.	1	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	—	Prev. Post.
	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
2. Any impression relating to Red Indians (e.g. headdress, wigwam, etc.)	—	1	—	1	—	1	1	—	2	—	—	—	1	—	1	—	—	—	Prev. Post.
	2	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	
	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	
3. Golf club or club (weapon).	—	—	—	—	—	1	1	—	—	1	—	—	—	—	—	—	—	—	Prev. Post.
	—	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	
	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Numbers of percipients <sup>1</sup>	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> For the "effective" numbers corresponding to these actual numbers see Table XXXV, Appendix IV.

TABLE XXXIII (continued)

10 October—(iii) 10.20-10.30 p.m. A small brown Egyptian female head with measuring tape drawn out through the mouth. When shaken something rattled inside the head, which was hollow.

Items	October				November				December			January			Feb.	March			
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of an Egyptian head or face only.	— 1 —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
2. Mention of a head or face only of a Negro, Mongol, Hindoo or other coloured native.	3 — —	— 1 —	1 — —	1 1 —	— — —	— — —	— — —	— — —	1 — —	— — —	— 2 —	1 — —	— — —	— — —	— — —	1 — —	— — —	— — —	Prev. Post.
3. Mention of a head or face only of a man, woman or doll not included in 1 and 2.	5 7 —	4 6 —	1 1 —	1 3 —	1 3 —	3 — —	5 — —	2 — 1	5 — —	4 — —	3 3 —	1 — —	1 — —	7 — —	7 — —	2 — —	2 — —	— — —	Prev. Post.
4. Mention of a piece of tape or of a measuring tape or of measuring land or cloth.	— — —	— — —	2 — —	— — —	— — 1	— — 1	1 — 1	— — —	— — —	— — —	— — 1	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
5. Mention of a piece of string, ribbon or rope being stretched or pulled out or of the unwinding of wool or playing cat's cradle. (Any cases from 4 are included here.)	— — —	— 1 —	1 — —	— 1 —	— — —	1 — —	— — —	— — —	1 — —	1 — —	— — —	— — —	2 — —	— — —	1 — —	— — —	— — —	1 — —	Prev. Post.
6. Mention of any impression connected with Egypt (excluding any given in 1).	— 1 —	4 — —	— — —	1 — —	1 3 —	— — —	1 — 1	2 — —	1 — —	— — —	— 3 —	— — —	1 — —	2 — —	2 — —	3 — —	1 — —	— — —	Prev. Post.
7. Mention of a rattle (e.g. baby's rattle, police rattle, stones rattled in a bag, etc.).	1 — —	1 2 —	— 1 —	1 1 —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

17 October—(i) 10.0-10.10 p.m. Model yacht with one white sail. Figure of native sitting in prow with one feather in his hat.

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of ship or boat with sail ( <i>e.g.</i> yacht, etc.).	4	4	2	1	1	—	4	2	4	3	—	2	—	1	—	3	1	—	Prev. Post.
	2	1	—	4	1	—	—	1	—	—	—	—	—	1	—	—	—	1	
2. Mention of boat or ship in which sail is not definitely mentioned or otherwise implied.	3	1	1	3	4	3	4	3	1	—	3	—	1	4	4	3	—	5	Prev. Post.
	15	7	5	—	2	2	—	—	—	—	2	—	—	—	—	—	—	—	
3. Mention of boat or ship with an Indian or native in it.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Prev. Post.
	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	
4. Mention of boat or ship with a figure in it (excluding 3).	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	Prev. Post.
	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	



TABLE XXXIII (continued)

Items	October				November				December				January				Feb.	March	
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
5. Mention of a single feather or quill.	—	—	—	—	—	—	1	—	1	—	—	—	—	—	1	1	1	—	Prev. Post.
	2	3	1	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	
6. Mention of several feathers or bunch of feathers (7 excluded).	2	2	4	—	2	1	3	5	1	1	1	—	—	3	—	1	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	4	5	2	1	3	—	—	—	—	—	—	—	—	—	—	—	—	—	
7. Mention of Indian head-dress of feathers.	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	Prev.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Numbers of percipients	-	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204

TABLE XXXIII (continued)

17 October—(ii) 10.10-10.20 p.m. I ignited a small bomb which made a slight detonation. A paper flower and small fragments of paper were shot out by the explosion. I then at 10.15 applied a match to a piece of prepared paper on which was drawn the figure of a balloon. The paper rose to the ceiling and fell in a charred mass.

Items	October				November				December			January			Feb.		March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Actual mention of a bomb or of an explosion or burst or bang.	— 1 —	1 2 1	— 1 —	— — —	— — —	— — —	— — —	— — —	2 — —	— — —	2 — —	— — —	1 — —	1 — —	1 — —	1 — —	— — —	— — —	Prev. Post.
2. Total mention of fireworks of all kinds and of other things connected with 5 November.	— — —	2 1 2	— 3 2	— 1 —	3 — —	2 — —	— — —	2 — —	— — —	2 — —	5 1 —	1 — —	1 — —	— — —	1 — —	1 — —	— — —	— — —	Prev. Post.
3. Mention of smoke or steam.	3 4 1	3 4 1	2 — —	2 — —	2 — —	— 2 —	— — —	— — —	3 — —	1 — —	2 2 —	— — —	1 — —	2 — —	1 — —	4 — —	— — —	— — —	Prev. Post.
4. Mention of burnt paper.	— — 1	— 1 —	— — —	1 — —	— — —	1 — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	Prev. Post.
5. Any other mention of burning or smell of burning (excluding 4).	2 1 3	1 1 1	1 1 —	3 1 —	1 1 —	1 — —	— — —	— — —	2 — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

Items	October				November				December				January				Feb.	March	
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
6. Mention of a balloon	—	1	—	—	—	—	—	—	—	—	1	—	—	2	1	2	—	1	Prev. Post.
	—	3	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
7. Mention of parachute descending.	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
8. Mention of pieces of paper flying about or paper streamers.	2	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	—	—	Prev. Post.
	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
9. Mention of crumpled paper (excluding 8) or fragments of paper.	—	—	—	—	1	—	—	1	—	—	—	—	—	—	1	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	
	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

17 October—(iii) 10.20-10.30 p.m. Silver firework stars in darkness.

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of star-lit sky or stars on a dark or black background.	— 1 —	— 2 —	— — —	— — —	— — —	— — —	1 — —	1 — —	1 — —	1 — —	— 1 —	1 — —	— — —	— — —	1 — —	— — —	— — —	— — —	Prev. Post.
2. Mention of night or darkness or blackness or of a dark background with no mention of light. (4 (a) is here included but 7 is excluded.)	2 3 —	3 — —	1 1 —	2 1 —	3 1 —	— 1 1	2 — —	2 — —	4 — —	4 — —	4 2 —	— — —	3 — —	6 — —	5 — —	2 — —	— — —	— — —	Prev. Post.
3. Mention of stars (real or artificial) without mention of a dark background.	3 1 —	— 2 —	2 1 1	— — 1	1 1 1	— — —	4 — —	1 — —	— — —	2 — —	— 3 —	2 — —	— — —	— — 1	1 — —	— — —	1 — —	— — —	Prev. Post.
4. (a) Mention of lights being switched off or room darkened and	— 5 —	1 1 —	— 1 —	1 1 —	— — —	1 — —	— — —	1 — —	2 — —	1 — —	— — —	— — —	— — —	1 — —	2 — —	3 — —	— — —	— — —	Prev. Post.
4. (b) Impressions of alternate light and darkness.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
5. Mention of flashes of light or of a steady light in darkness. (4 and 7 are excluded.)	— 3 —	— 1 —	— — —	1 — —	— — —	1 1 —	— — —	1 — —	2 — —	1 — —	1 1 —	— — —	— — —	— — —	2 — —	— — —	— — —	— — —	Prev. Post.
6. Mention of lights without contrast with darkness. (3, 4, 7 and 10 excluded.)	12 30 —	7 17 —	3 3 —	10 9 2	5 6 1	1 4 —	6 — 1	4 — —	5 — —	8 — —	8 9 —	5 — —	7 — —	13 — —	7 — —	9 — —	— — —	7 — —	Prev. Post.
7. Mention of sparks or scintillations or coloured lights from fireworks in action.	— — —	1 — —	— 1 1	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	1 3 —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
8. Mention of any sparking type of firework (e.g. Catherine-wheel), but not in action.	— — —	1 1 —	— 1 1	— — —	2 — —	1 — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	1 — —	— — —	— — —	Prev. Post.
9. Total of fireworks of all descriptions and 5 November impressions.	— — —	2 3 —	— 3 2	— 1 —	3 — —	2 — —	— — —	2 — —	— — —	2 — —	5 1 —	1 — —	1 — —	— — —	1 — —	1 — —	— — —	— — —	Prev. Post.
10. Mention of sparks or scintillations apart from fireworks.	— 1 —	— — —	— 1 —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

24 October—(i) 10.0-10.10 p.m. I twanged a toy mandolin.

Items	October				November				December			January			Feb.	March			
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of a mandolin, banjo, lute or guitar.	1 — —	— — 1	— — —	— — 1	2 — —	1 — 1	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — 1	— — —	1 — —	1 — —	1 — —	Prev. Post.
2. Mention of violin or 'cello.	3 — 5	— — 2	3 — 1	1 — —	4 — 2	2 — 1	1 — —	— — —	3 — —	1 — —	— — —	— — —	— — —	4 — —	3 — —	5 — —	— — —	— — —	Prev. Post.
3. Mention of any other stringed instrument.	— — 2	— — 4	2 — 1	— — 3	1 — —	— — —	— — 1	1 — —	2 — —	— — —	— — —	— — —	— — —	— — —	2 — —	— — —	— — —	— — —	Prev. Post.
4. Mention of other musical <sup>1</sup> instruments not included in 1, 2 and 3.	12 — 22	9 — 11	5 — 4	3 — 4	3 — 5	1 — 2	4 — —	7 — —	13 — 5	7 — —	4 — 12	1 — —	4 — 1	12 — —	11 — 1	8 — —	1 — —	9 — —	Prev. Post.
5. Impressions of music or singing with no mention of any instrument.	7 — 17	3 — 5	1 — 6	2 — —	1 — 2	2 — 1	— — 1	1 — —	7 — 1	3 — —	— — 8	1 — 1	— — —	3 — —	4 — —	4 — —	1 — —	3 — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> Another object suggesting music was shown on 19 December.

TABLE XXXIII (continued)

24 October—(ii) 10.10-10.20 p.m. A long salmon-coloured cardboard nose with black spectacle rims attached and worn by each agent in turn.

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of a long nose, a large nose or any peculiar nose.	— — 1	— — —	— 1 —	1 — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
2. Any other mention of the word "nose" not included in 1.	— — —	— — —	1 — —	— — —	— — —	— 1 —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
3. Mention of Punch or of a jester.	2 — 1	1 — —	1 — —	— — —	— — —	— — —	— — 1	— — —	— — —	— — —	— — —	— — —	1 — —	2 — —	— — —	— — —	3 — —	2 — —	Prev. Post.
4. Mention of a grotesque face or comic face or of a gargoyle.	— — —	1 1 —	— 1 —	— — —	— — —	1 — —	1 — —	— — —	1 — —	2 — —	1 — —	1 — —	— — —	— — —	1 — —	— — —	— — —	— — —	Prev. Post.
Numbers of percipients -	414	386	385	355	327	311	342	313	333	278	288	269	261	260	294	276	252	204	

TABLE XXXIII (continued)

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
5. Mention of a Jack-in-box or of a Judy or of marionettes.	— — —	— — —	— — —	— — —	— — —	— — —	2 — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	1 — —	— — —	Prev. Post.
6. Mention of spectacles, <sup>1</sup> pince-nez or goggles.	2 1 1	5 1 1	2 1 —	1 3 —	1 2 —	1 1 —	2 — 1	— — —	4 — —	4 — —	3 4 —	2 — —	— — —	4 — —	3 — —	1 — —	— — —	— — —	Prev. Post.
7. Mention of a mask of any kind.	2 — 1	2 2 —	— 1 —	2 — —	2 — —	2 — —	— — —	1 — —	1 — —	2 — —	1 — —	2 — —	— — —	1 — —	— — —	1 — —	1 — —	— — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> On the dates printed in clarendon spectacles were again the subject of experiment.



TABLE XXXIII (continued)

31 October—(i) 10.0-10.10 p.m. A toy yellow plaster duck wearing a black top hat and spectacles. A mention of "goose" by the agents.

Items	October				November				December			January			Feb.	March			
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of a yellow duck. <sup>1</sup>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
2. Mention of a duck but not yellow.	1	1	—	1	—	—	—	—	—	1	—	1	—	—	—	1	2	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	3	1	1	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	
3. Mention of other yellow bird (including canary).	—	1	1	—	—	—	1	—	1	—	5	—	—	—	—	1	1	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	1	1	1	—	—	—	—	—	2	—	—	—	—	—	—	—	
4. Mention of goose.	1	—	1	2	—	—	—	—	—	—	—	1	—	—	—	1	1	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
5. Mention of top hat or man's tall hat.	2	—	—	—	1	1	—	2	2	1	—	1	1	2	2	1	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	2	2	1	1	3	1	—	—	—	—	2	—	—	—	—	—	—	—	
Numbers of percipients -	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> On 13 March another duck was the subject of experiment.

TABLE XXXIII (continued)

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
6. Mention of spectacles, <sup>1</sup> pince-nez or goggles.	1 3	1 6	1 2	3 1	2 1	1 1	2 1	— —	4 —	4 —	4 3	2 —	— —	4 —	3 —	1 —	— —	— —	Prev. Post.
7. Total number of mentions of geese, swans, ducks and all water birds.	3 3	2 2	2 2	4 2	— 1	2 2	1 —	1 —	1 —	3 1	1 —	3 —	1 —	3 —	2 —	2 —	3 1	1 —	Prev. Post.
8. Total number of mentions of birds of all descrip- tions.	15 21	14 23	12 15	13 11	10 10	9 13	13 —	8 —	8 —	6 1	15 10	9 —	12 1	11 —	9 —	10 —	8 1	7 —	Prev. Post.
9. Total mentions of fea- thers, quills, egg or eggs without mention of bird.	3 8	3 6	4 3	2 1	2 4	1 1	3 —	3 —	5 —	1 —	7 4	4 —	8 —	4 —	3 —	3 —	3 —	3 —	Prev. Post.
10. Mention of any animal wearing spectacles or goggles.	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
11. Mention of hat and spec- tacles in the same ten minutes.	— — —	— — —	— — —	— — 1	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> On 24 October spectacle rims were again an object of experiment.

TABLE XXXIII (continued)

31 October—(ii) 10.10-10.20 p.m. A bluebell-shaped paper ornament somewhat resembling a Chinese lantern but honeycombed with cells and folding up like a fan.

Items	October				November				December				January				Feb.	March	
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of a paper cap or hat or fool's cap, conical hat or funny hat or Chinese hat.	— — 1	1 — —	— — —	1 1 —	— — —	— 2 —	— — —	1 — —	1 — —	1 — —	1 — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	Prev. Post.
2. Mention of Japanese or Chinese lantern or any other paper lantern.	— 1 —	— 1 1	— — —	1 2 —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
3. Mention of any bell-shaped object (e.g. harebell) or mention of church bell, hand bell or school bell.	2 1 2	— 1 1	1 — —	— — —	1 — —	1 3 —	3 — —	— — —	— — —	1 — —	— 2 —	1 — —	1 — —	— — —	2 — —	2 — —	— — —	— — —	Prev. Post.
4. Mention of a fan or a fan-shaped object (excluding electric fan).	1 1 1	— 3 1	— 2 1	1 1 1	1 1 —	2 — —	4 — —	1 — —	5 — —	2 — —	— 2 —	1 — —	1 — —	3 — —	1 — —	1 — —	— — —	— — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
5. Mention of honeycomb or cells or a drawing suggesting cells or honeycomb or lattice work.	—	—	—	1	1	—	—	1	—	1	—	—	—	1	—	1	1	—	Prev. Post.
	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	2	2	—	1	3	4	—	1	—	—	1	—	—	—	—	—	
6. Impressions of blue which seem to have been of special vividness.	2	5	1	1	3	1	1	3	6	2	5	3	2	5	4	2	1	4	Prev. Post.
	11	4	1	3	8	2	—	—	—	—	3	—	—	—	—	—	—	—	
	7	3	—	1	1	1	1	—	—	—	—	—	—	—	—	—	—	—	
7. Impressions of green which seem to have been of special vividness.	4	2	3	4	1	1	2	1	3	7	2	6	1	3	4	2	—	2	Prev. Post.
	13	3	3	2	5	6	—	—	—	—	2	—	—	—	—	—	—	—	
	4	4	—	1	1	—	—	—	—	1	2	—	1	—	—	—	—	—	
8. Total number of mentions of blue.	14	10	5	5	7	6	9	13	13	12	5	10	7	11	11	8	8	5	Prev. Post.
	30	14	10	8	14	11	—	—	—	—	13	—	—	—	—	—	—	—	
	19	11	2	3	4	1	3	1	—	—	1	1	1	—	—	—	—	—	
9. Total number of mentions of green.	16	7	8	9	3	5	10	5	11	16	6	15	7	8	10	12	8	4	Prev. Post.
	22	12	11	7	12	11	—	—	—	—	5	—	—	—	—	—	—	—	
	11	11	1	5	2	1	1	—	1	1	2	—	1	—	—	—	1	—	
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

7 November—(i) 10.0-10.10 p.m. I wore a brilliant scarlet conical dunce cap; also several large sheets of scarlet paper were placed in different parts of the room.

Items	October			November			December			January			Feb.		March				
	10 <sup>1</sup>	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of a dunce's cap, fool's cap or conical hat or pierrot's cap (all conical).	— — —	— — 1	— — —	— — 1	— — —	2 — —	— — —	1 — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	Prev. Post.
2. Mention of a paper hat or funny hat (excluding cases from 1).	— — 1	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — 1	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
3. A red hat or cap of any description.	1 — —	— — 2	— — —	— — —	— — 1	— — —	— — —	— — —	— — —	— — —	1 — 1	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
4. A cone <sup>a</sup> or other conical object (excluding 1).	1 — 2	2 — —	— — 1	— — —	2 — —	— — —	1 — —	— — —	1 — —	— — —	3 — —	1 — —	2 — —	— — —	— — —	1 — —	1 — —	— — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> On the dates printed in clarendon other vivid red objects were shown.

<sup>2</sup> Cones in the geometrical tests are here omitted. For these see Table IX.

TABLE XXXIII (continued)

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
5. Mention of rolls of paper or sheets of paper or coloured paper.	1	—	—	1	3	2	—	1	—	2	2	—	3	—	1	2	4	—	Prev. Post.
	2	—	4	—	1	1	—	2	—	—	—	—	—	—	—	—	—	—	
6. All impressions of red which seem to have been of special vividness.	14	11	3	7	9	9	5	4	7	2	6	6	4	2	8	5	5	5	Prev. Post.
	11	12	4	—	4	6	1	—	1	1	5	—	—	—	—	—	—	—	
7. Total mentions of all red objects (including any in the preceding category).	30	26	12	15	15	22	12	9	13	12	11	13	14	9	12	14	11	9	Prev. Post.
	28	26	16	12	13	15	1	1	2	2	14	1	2	—	—	—	—	—	
Numbers of percipients -	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

7 November—(ii) 10.10-10.20 p.m. A toy blacksmith which when wound up struck with a sledge-hammer a piece of iron on an anvil. Each time the hammer fell sparks flew from the iron.

Items	October				November				December			January			Feb.		March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of a hammer or mallet or blows from a hammer or mallet.	— 1 1	2 — 2	1 1 —	1 1 —	1 — —	— 1 —	1 — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	Prev. Post.
2. Mention of a blacksmith.	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
3. Mention of a horseshoe.	— — —	1 3 —	— 1 —	— 1 —	1 1 —	— — —	1 — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	Prev. Post.
4. Mention of horses or horse or pony (excluding 3).	4 2 1	5 4 2	— 3 —	2 1 —	3 3 —	1 1 —	2 — —	3 — —	6 — —	3 — —	2 5 —	7 — —	2 — —	5 — —	5 — —	3 1 —	2 — —	2 — —	Prev. Post.
5. Mention of clinking or jingling sound or sound of metal or glass or mechanical sound.	2 4 2	1 2 1	— — —	1 1 —	— — —	— — —	1 — —	2 — —	— — —	— — —	— — —	— — —	— — —	— — —	2 — —	— — —	— — —	1 — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

Items	October				November				December				January		Feb.		March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
6. Mention of sound of blows or raps or taps or cracks (excluding 5 and 1).	2 6 4	— 2 1	1 — —	— — —	2 — —	— — —	— — 1	— — 1	1 — —	— — —	— — —	— — 1	— — —	— — —	— — —	1 — —	— — —	— — —	Prev. Post.
7. All <sup>1</sup> mentions of metal, including either the word "metal" or name of any specific metal ( <i>e.g.</i> gold, silver, iron, steel, etc.). (Any cases from 5 are included.)	12 31 18	13 21 15	14 19 2	15 18 —	13 9 —	13 8 —	17 — —	18 — —	10 — —	7 — —	9 55 —	35 — —	32 — —	17 — —	22 — —	8 — —	23 — —	7 — —	Prev. Post.
8. All mentions of words "iron" or "steel."	1 3 —	1 1 1	3 1 2	1 2 —	2 1 —	— — —	1 — —	2 — —	2 — —	2 — —	— 1 —	1 — —	1 — —	2 — —	2 — —	3 — —	— — —	1 — —	Prev. Post.
9. Mention of sparks or fire-works actually emitting sparks.	— 1 —	— — —	— — —	— — —	— — —	1 — —	1 — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	Prev. Post.
10. Mention of a mechanical toy or working model; a machine.	— 2 1	2 1 2	— 1 —	— 4 —	— 1 —	1 — —	1 — —	1 — —	1 — —	3 — —	4 2 —	1 — —	2 — —	2 — —	1 — —	1 — —	2 — —	1 — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> The abnormally large number of impressions of metal on 19 December and 9 and 16 January are probably due to the suggestion of the brass-topped table.



TABLE XXXIII (continued)

14 November—(i) 10.0-10.10 p.m. A few sprigs of artificial mistletoe and dark green leaves. Mention of Druids, oak tree and golden knife; also of Chesterton's "Balder."

Items	October				November				December			January			Feb.	March			
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of white berries.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
2. Mention of berries other than white.	—	1	—	—	—	—	—	—	—	2	—	—	—	—	1	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	2	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
3. Mention of pearls or white beads.	1	1	—	1	2	1	1	—	—	1	1	—	—	—	—	—	2	1	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	1	1	2	—	2	1	—	—	—	—	—	—	—	—	—	—	—	—	
4. Mention of beads (colour unspecified or not white) and mention of necklace.	—	2	2	4	2	—	1	1	1	—	1	—	1	2	3	—	4	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	6	4	—	3	3	5	—	—	—	—	—	1	—	—	—	—	—	—	
5. Mention of Druids, etc., or of Balder.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

Items	October				November				December			January			Feb.	March			
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
6. Mention of holly.	—	1	—	—	—	—	—	—	—	4	3	—	1	—	—	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	1	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	
7. Mention of oak tree or oak leaf, acorns or oak furniture.	—	1	—	3	—	—	—	1	—	—	1	—	—	1	1	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	4	2	1	1	—	3	—	—	—	—	1	—	—	—	—	—	1	—	
8. Mention of golden knife or golden dagger or sword.	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
9. Mention of knife or dagger or sword other than 8.	3	2	—	—	3	—	2	—	2	3	1	3	5	3	2	4	1	1	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	4	4	1	3	—	3	1	1	—	—	1	—	—	—	—	—	—	—	
10. Mention of Christmas or impressions directly associated with Christmas.	—	—	—	—	—	1	—	4	6	—	11	1	1	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	1	—	—	—	—	—	8	—	—	—	—	—	—	—	
Numbers of percipients -	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
11. Mention of leaves or ferns other than in 6 and 7.	11 9	6 5	4 4	3 3	1 1	2 2	3 —	1 —	2 1	3 —	2 5	2 —	— —	4 —	5 —	2 —	5 —	1 —	Prev. Post.
12. Mention of a cluster of white flowers (small).	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	
13. Mention of mistletoe.	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — 1	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
Numbers of percipients	414	386	385	365	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

14 November—(ii) 10.10-10.20 p.m. Chocolate-coloured bear of tin on hind legs carrying a pole. When wound up it rotated slowly.

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of bear <sup>1</sup> with stick or bear on stick.	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	Prev. Post.
2. Mention of chocolate-coloured or brown bear.	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
3. Mention of any other bear (excluding 1 and 2).	— — 1	— — —	— — —	— — —	— — —	— — —	— — —	1 — 1	— — —	— — —	— — —	— — —	— — —	— — —	— — —	2 — —	— — —	— — —	Prev. Post.
4. Mention of a pole or long staff.	— — 1	— — 1	— — —	— — —	2 1 —	1 — —	— — —	1 — —	— — —	1 — —	— — —	1 — —	— — —	— — —	— — —	1 — —	1 — —	— — —	Prev. Post.
5. Mention of stick or walking stick or golf club or mace or long rod or cane or cue or rake or broom handle (1 excluded).	5 5 1	3 4 8	3 5 —	3 5 —	2 4 1	2 2 1	4 — —	4 — —	4 — —	2 — —	2 1 —	1 — —	1 — —	3 — —	3 — —	2 — —	1 — —	1 — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> A bear was also shown on 30 January.

TABLE XXXIII (continued)

Items	October				November				December				January		Feb.		March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
6. Total number of poles, sticks, rods, etc. in 1, 4 and 5.	5 5 2	3 4 9	3 4 —	3 5 0	4 5 1	3 2 1	4 — —	5 — —	4 — —	3 — —	2 1 —	2 — —	1 — —	3 — —	4 — —	3 — —	1 — —	1 — —	Prev. Post.
7. Mention of animal on stick or with stick (excluding 1).	— — —	— 1 —	— — —	— — —	— 1 —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	1 — —	1 — —	— — —	— — —	Prev. Post.
8. Mention of clown or jester on stick.	1 — —	— — —	— — —	1 — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	1 — —	— — —	Prev. Post.
9. Animal rampant or on its hind legs, including heraldic lion or rearing or jumping animal (lion or unicorn).	— — —	— — —	1 1 —	— — —	1 — —	— — —	2 — —	— — —	— — —	1 — —	— 1 —	— — —	1 — —	— — —	1 — —	2 — —	— — —	1 — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

21 November—(i) 10.0-10.10 p.m. Man with scissors at rotating wheel of grindstone. Sparks flying.

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of rotating wheel.	1 3	— 2	— 1	— 1	— —	— 1	1 —	1 —	1 —	— —	1 —	1 —	1 —	1 —	— —	2 —	— —	— —	Prev. Post.
2. Mention of wheel without rotation.	1 —	1 —	1 2	1 2	— 2	1 1	4 —	1 —	3 —	1 —	— 3	1 —	— —	1 —	— 1	1 —	2 —	— —	
3. Mention of rotation other than wheels.	2 9	4 3	1 4	8 1	3 4	1 —	4 —	1 1	3 —	3 1	— 5	1 —	3 —	2 —	2 —	3 —	1 —	— —	Prev. Post.
4. Mention of scissors only.	2 3	2 3	2 —	3 2	— 2	2 1	1 1	1 —	4 —	2 —	1 2	1 —	5 —	1 —	4 —	— —	1 —	— —	
5. Showers of sparks <sup>1</sup> or lights flying upwards.	1 —	— 1	— —	— —	— —	— 1	1 —	— —	— —	— —	— 1	— —	— —	— —	— —	— —	— —	1 —	Prev. Post.
6. Mention of grindstone.	— —	— —	1 —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> There were sparks also shown on 17 October.

TABLE XXXIII (continued)

28 November—(i) 10.0-10.10 p.m. Three pale yellow chrysanthemums and sheets of yellow paper unrolled.

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of yellow chrysanthemums.	1	1	—	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	Prev. Post.
	—	—	2	—	3	1	—	—	—	—	—	—	—	—	—	—	—	—	
2. Mention of chrysanthemums other than yellow or colour unspecified.	4	2	1	—	2	5	3	1	1	—	1	—	—	1	—	1	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	2	3	2	2	4	2	—	—	—	—	—	—	—	—	—	—	—	—	
3. Yellow or orange flowers other than chrysanthemums.	1	2	2	1	3	3	1	1	1	2	—	—	—	6	3	5	2	4	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	5	1	—	2	1	—	—	—	—	—	2	1	—	—	—	—	—	—	
4. Total mentions of flowers <sup>1</sup> of all descriptions (including 1, 2 and 3).	37	24	13	19	14	19	21	10	20	9	10	10	11	17	20	19	16	17	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	53	32	21	19	17	14	—	—	—	—	15	1	1	—	1	—	—	—	
5. Vivid impressions of yellow, gold and orange (including 1, 2 and 3).	7	1	2	3	2	2	3	2	2	2	1	3	2	2	1	2	3	1	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	8	4	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	
6. Total mentions of yellow, gold and orange (including 1, 2, 3 and 5).	24	11	18	20	17	12	17	12	16	9	27	16	16	15	15	16	16	8	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	9	—	—	—	—	—	—	1	
	26	29	14	16	13	14	—	—	—	—	—	—	—	—	—	—	—	—	
Numbers of percipients.	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	248	252	204	

<sup>1</sup> On the dates in clarendon other flowers were the object of experiment.

TABLE XXXIII (*continued*)

5 December—(i) 10.0-10.10 p.m. Postcard photo of kangaroo.

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of kangaroo.	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
2. Mention of marsupial other than kangaroo.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
3. Mention of a rat or rabbit or squirrel or badger.	1	3	1	3	—	—	4	3	3	2	—	—	2	4	2	—	5	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	2	2	1	2	2	1	—	—	—	—	1	—	—	—	—	—	—	—	
4. Reference to tail of an animal.	—	1	—	1	1	—	—	—	—	1	—	—	—	1	—	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
5. Reference to Australia or Australian associations other than 1 and 2.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	
6. Mention of animal fighting or being trapped.	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Numbers of percipients -	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	248	252	204	



TABLE XXXIII (continued)

12 December—(i) 10.0-10.10 p.m. Photo of alligator with open jaws.

Items	October				November				December			January			Feb.		March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of alligator or crocodile.	— — —	2 — —	— — 1	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	1 — —	— — —	— — —	Prev. Post.
2. Mention of a large fish like a pike or shark.	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	1 — —	— — —	1 — —	— — 1	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
3. Mention of any reptile other than crocodile.	3 — —	1 — 4	2 — 3	1 — —	— — 1	1 — —	1 — —	2 — —	1 — —	1 — —	2 — —	5 — —	3 — —	— — —	— — —	— — —	3 — —	3 — —	Prev. Post.
4. Mention of open jaw or open mouth.	2 — —	1 — —	— — —	— — 1	— — —	1 — —	— — —	1 — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
5. Mention of rows of teeth.	— — —	— — —	— — —	1 — 1	1 — —	— — —	1 — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
6. Mention of fear, repulsion, horror, depression, ferocity and ideas suggesting death <sup>1</sup> and danger.	5 — 12	5 — 7	4 — 4	3 — 1	2 — 9	2 — 1	1 — —	3 — —	4 — —	6 — —	11 — 3	6 — —	2 — —	4 — —	7 — —	3 — —	5 — —	6 — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> On 20 March another object suggesting death was shown—a skull.

TABLE XXXIII (*continued*)

19 December—(i) 10.0-10.10 p.m. Organ grinder and monkey. Black cloth raised at 10.2 p.m.

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of monkey and organ.	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
2. Barrel organ or street piano only (excluding 1).	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Prev. Post.
	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	
3. Musical box (excluding 1 and 2).	1	1	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	Prev. Post.
	1	2	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	
4. Piano (not a street piano).	6	1	1	1	—	—	1	1	5	5	—	—	—	3	5	5	—	4	Prev. Post.
	16	2	3	—	1	1	—	—	2	—	6	—	—	—	—	—	—	—	
5. A handle being turned or something wound up.	1	—	—	—	—	—	—	—	—	—	1	—	—	1	1	—	—	—	Prev. Post.
	—	2	1	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	
6. Monkey or ape only (excluding 1).	—	4	2	3	1	1	—	—	—	—	—	—	1	—	1	—	1	—	Prev. Post.
	4	1	1	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	296	252	204	

TABLE XXXIII (continued)

Items	October				November				December			January			Feb.	March			
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
7. Man nodding his head or moving head to and fro or rhythmic nodding of heads.	— 2	— —	— —	— —	— —	— —	— —	— —	— —	— —	— 1	— —	— —	— —	— —	1 —	— —	— —	Prev. Post.
8. Mention of music <sup>1</sup> or singing or instruments other than in preceding.	15 30	9 19	10 8	5 8	11 7	5 4	4 2	8 —	20 4	6 —	3 13	3 —	4 1	15 1	15 1	12 —	3 —	9 —	Prev. Post.
9. Single figure or man dancing or puppet dancing.	1 2	1 —	1 1	— —	— 1	— 1	— —	1 1	2 —	2 —	— 2	1 1	— —	— —	— —	1 0	— —	— —	Prev. Post.
10. Mention of dancing other than in 9 (groups of people).	— 4	1 —	— —	— —	— —	1 1	— —	— —	6 —	2 —	— 3	— —	— —	1 —	1 —	8 —	— —	— —	Prev. Post.
11. Italian impressions.	— 1	— —	— —	— —	— —	— —	— —	1 —	— —	— —	— 1	— —	1 —	— —	— —	— —	1 —	1 —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> On 24 October another object was shown suggesting music.

TABLE XXXIII (continued)

19 December—(ii) 10.10-10.20 p.m. Dog with cap and pipe and box of matches.

Items	October				November				December				January			Feb.		March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20		
1. Mention of any kind of dog <sup>1</sup> (including 2).	6 4 6	1 4 8	5 3 —	3 10 —	5 4 —	3 4 —	6 — 3	1 — —	5 — —	2 — 1	1 1 —	2 — —	2 — 1	4 — —	8 — —	9 — —	— — —	4 — —	Prev. Post.	
2. Dog in any kind of hat or cap.	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	Prev. Post.	
3. Any animal dressed up other than in 2.	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	2 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.	
4. Mention of a pipe (not being smoked).	2 1 1	1 1 —	— — —	— 1 1	3 1 —	— 1 —	2 — —	3 — —	2 — —	1 — —	2 1 —	1 — —	1 — —	1 — —	2 — —	— — —	— — —	2 — —	Prev. Post.	
5. Mention of a pipe (being smoked) or pipe in mouth	2 — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	4 — —	1 — —	— — —	1 — —	— — —	1 — —	1 — —	— — —	— — —	Prev. Post.	
Numbers of percipients -	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204		

<sup>1</sup> On 13 February another dog was the object of experiment.

TABLE XXXIII (continued)

Items	October				November				December			January			Feb.	March			
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
6. Mention of a box of matches or a match.	1	1	—	1	—	—	1	—	1	1	—	—	1	—	—	1	—	—	Prev. Post.
	2	1	—	2	—	—	—	—	—	—	1	—	—	—	—	—	—	—	
	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
7. Mention of a cap (excluding fool's cap).	—	3	1	—	3	2	—	—	—	1	1	—	1	—	—	—	—	1	Prev. Post.
	—	1	1	2	—	—	—	—	—	—	1	—	—	—	—	—	—	—	
	3	1	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	
8. Mention of any kind of hat or head covering other than in 7.	—	5	3	3	4	1	7	7	6	5	5	3	2	6	5	6	2	1	Prev. Post.
	5	1	1	3	1	6	—	—	—	—	—	—	—	—	—	—	—	—	
	2	5	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	
Numbers of percipients -	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

9 January—(i) 10.0-10.10 p.m. A red apple. Black cloth raised at 10.2 p.m. and apple revealed.

Items	October				November				December				January		Feb.		March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of a red apple or apples.	—	—	1	1	1	1	—	—	—	1	—	1	—	—	—	—	—	—	Prev. Post.
	—	1	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	
2. Mention of green apple or red not mentioned in description.	2	2	—	—	1	1	1	—	—	4	4	4	—	2	1	2	—	1	Prev. Post.
	3	3	4	—	1	3	—	—	—	—	4	—	—	—	—	—	—	—	
3. Mention of orange or oranges.	3	1	2	1	2	2	2	4	1	—	3	—	5	1	2	4	2	2	Prev. Post.
	2	1	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	
4. Mention of fruit distinct from 1, 2 and 3 or fruit unspecified.	3	2	4	1	6	6	2	2	6	4	1	3	4	4	5	3	1	1	Prev. Post.
	8	4	4	4	1	1	—	—	—	—	—	—	—	—	—	—	—	—	
5. Total mention of all globular objects (including 1, 2 and 3) and all globes and balls.	10	15	10	7	10	7	7	12	7	8	19	19	19	11	6	14	9	7	Prev. Post.
	16	18	8	5	10	12	—	—	—	1	8	—	1	—	—	—	—	—	
Numbers of percipients -	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

16 January—(i) 10.0-10.10 p.m. A Chinese cup and saucer.

Items	October				November				December				January			Feb.		March	
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of an ordinary cup and saucer. (Porcelain or ordinary crockery.)	3 — 1	— — —	— — 1	1 — 1	— — —	2 — 2	— — —	2 — —	1 — —	1 — —	1 — 1	3 — —	1 — —	3 — —	1 — —	1 — —	— — —	— — —	Prev. Post.
2. Mention of an ordinary cup without saucer or of saucer without cup. (Silver cup excluded.)	1 — 3	1 — 3	1 — 1	1 — —	1 — 4	4 — 1	— — —	2 — —	2 — —	4 — —	3 — 1	1 — —	— — —	— — —	1 — —	1 — —	2 — —	— — —	Prev. Post.
3. Total number of mentions of porcelain or china pottery (including any cases from 1, 2 and 8).	2 — 15	3 — 4	3 — 3	4 — 3	4 — 1	1 — 2	9 — —	5 — —	3 — —	1 — —	7 — 1	9 — —	7 — —	3 — —	4 — —	3 — —	8 — —	1 — —	Prev. Post.
4. Mention of any impression connected intimately with the country China or Japan. (Mere mention of china pottery excluded.)	1 — 8	4 — 8	3 — 4	4 — 4	2 — —	2 — 1	2 — —	2 — —	4 — —	— — —	4 — 4	4 — —	4 — —	5 — —	1 — —	1 — —	4 — —	— — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

S. G. Seal

[PART

TABLE XXXIII (continued)

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
5. Impressions connected with the East (excluding any in 4 or 6).	2 — 1	— — 6	3 — 4	1 — 2	2 — 4	2 — —	— — 2	3 — —	1 — —	— — —	10 — 6	6 — —	1 — —	4 — —	— — —	7 — —	2 — —	1 — —	Prev. Post.
6. Mention of any Eastern vase, vessel, bowl or plate (including Chinese vase or bowl).	1 — 3	— — 3	3 — 2	— — 1	— — —	1 — —	— — —	1 — —	— — —	— — —	— — —	— — —	2 — —	2 — —	— — —	— — —	3 — —	— — —	Prev. Post.
7. Mention of tea or of drinking tea or of tea kettle, tea cosy, tea pot or tea spoon (excluding tea cup or saucer).	— — 5	2 — 1	2 — 2	— — 3	2 — 2	— — —	2 — —	1 — —	3 — —	4 — —	4 — —	— — —	2 — —	— — —	1 — —	1 — —	— — —	2 — —	Prev. Post.
8. Mention of vessel definitely used in connection with drinking (including silver cup or goblet but excluding any previous cases in 7).	5 — 12	4 — 8	2 — 2	7 — 9	3 — 5	4 — 3	7 — —	4 — —	3 — —	6 — —	12 — —	5 — —	11 — —	8 — —	5 — —	12 — —	7 — —	5 — —	Prev. Post.
9. Mention of vases, jugs, bowls, pots, jars, bottles, vessels not included in the preceding.	28 — 29	16 — 23	15 — 11	14 — 15	11 — 15	9 — 2	18 — —	14 — —	19 — —	10 — —	18 — 9	24 — —	24 — 1	18 — —	21 — —	13 — —	10 — —	5 — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	



TABLE XXXIII (continued)

23 January—(i) 10.0-10.10 p.m. Postcard showing vivid dark red rose with pale green leaves and one opening bud.

Items	October				November				December				January				Feb.	March	
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of red (not pink) rose with leaves.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
2. Mention of red (not pink) rose and no leaves.	3	1	—	—	1	2	—	1	1	2	—	1	—	1	1	—	—	—	Prev. Post.
	2	2	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	
3. Mention of rose other than red or colour unspecified with leaves.	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	
4. Mention of rose other than red or colour unspecified without leaves.	5	3	1	6	3	4	3	1	2	2	2	1	—	—	—	—	2	—	Prev. Post.
	4	2	1	6	—	1	—	—	—	—	—	—	—	—	—	—	—	—	
5. Mention of any other red flowers with leaves.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Prev. Post.
	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
6. Mention of any other red flowers without leaves.	5	—	—	1	1	1	1	—	—	—	—	1	—	3	1	1	2	2	Prev. Post.
	5	1	1	—	2	3	—	—	—	—	—	—	—	—	—	—	—	—	
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued).

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*Experiments in Supernormal Perception*

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Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
7. Total numbers of red (not pink) flowers with or without leaves and including 1, 2, 5 and 6.	8 7	1 3	— 3	1 —	2 2	3 3	1 —	1 —	1 —	2 —	— 1	2 —	— —	4 —	2 —	1 —	2 —	2 —	Prev. Post.
8. Total numbers of flowers <sup>1</sup> of all descriptions, including all the preceding.	37 53	24 32	13 21	19 19	14 17	19 14	21 —	10 —	20 —	9 —	10 15	10 1	11 1	17 —	20 1	19 —	16 —	17 —	Prev. Post.
9. Total mention of definite leaves with or without flowers (including ferns, holly and ivy) but not mere mention of green trees or plants without special reference to leaves.	10 7	7 5	4 4	4 2	1 1	2 4	3 —	2 —	2 —	7 —	5 6	1 —	1 —	4 —	5 —	2 —	5 1	— —	Prev. Post.
10. Total number of mentions of red or red objects.	30 28	26 26	12 16	15 12	15 13	22 15	12 1	9 1	13 2	12 2	11 14	13 1	14 2	9 —	12 —	14 1	11 —	9 —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> Other flowers were the object of experiment on dates 10 October and 28 November. Vivid red objects were shown on 10 October and 7 November.

TABLE XXXIII (continued)

30 January—(i) 10.0-10.10 p.m. Brown furry bear<sup>1</sup> with pink ball between its forepaws.

Items	October				November				December				January				Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20		
1. Mention of a brown or black bear only.	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	— —	Prev. Post.	
2. Mention of white bear or bear with colour unspecified.	— 1	— —	— —	— —	— —	— —	— —	1 1	— —	— —	— —	— —	— —	— —	— —	3 —	— —	— —	Prev. Post.	
3. Mention of any animal playing with a ball.	— —	— 1	— —	— —	— —	— —	— —	— —	— —	1 —	— —	— —	— —	— —	— —	— —	— —	— —	Prev. Post.	
4. Mention of a furry animal or shaggy animal (attention drawn to fur or shagginess).	1 —	— —	— 2	2 1	1 1	— —	1 —	1 —	— —	2 —	— —	— —	— —	1 —	1 —	1 —	2 —	1 —	Prev. Post.	
5. Mention of fur and no animal.	2 3	— 3	1 —	1 —	1 2	1 2	2 —	— —	— —	— —	— 2	— —	— —	— —	— —	— —	5 —	— —	Prev. Post.	
6. Mention of a ball only (excluding 3).	4 8	7 7	4 1	4 4	2 4	2 4	2 —	7 —	5 —	2 1	10 2	3 —	7 —	4 —	0 —	5 —	3 —	3 —	Prev. Post.	
Numbers of percipients -	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204		

<sup>1</sup> Another bear was shown on 14 November.

TABLE XXXIII (continued)

Items	October				November				December			January			Feb.	March			
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
7. Toy animal (cat, dog, rabbit, lamb, sheep).	—	—	—	1	1	—	4	—	2	—	—	—	3	2	1	1	2	—	Prev.
	2	1	—	—	2	1	1	—	—	—	—	—	—	—	—	—	—	—	Post.
8. Mention of a globe or spherical object not described as a ball.	6	8	6	3	8	5	5	5	2	6	9	16	12	7	6	9	6	4	Prev.
	8	10	7	1	6	8	—	—	—	—	6	—	1	—	—	—	—	—	Post.
9. Black or brown dog or cat.	1	3	—	2	—	1	1	—	1	—	1	2	—	1	3	3	3	3	Prev.
	1	2	—	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	Post.
10. Gollywog.	—	—	1	—	—	1	—	1	2	—	1	—	—	—	—	2	4	—	Prev.
	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	Post.
11. Total numbers of balls and spherical objects.	10	15	10	7	10	7	7	12	7	8	19	19	19	11	6	14	9	7	Prev.
	16	18	8	5	10	12	—	—	—	1	8	—	1	—	—	—	—	—	Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	250	204	

TABLE XXXIII (continued)

13 February—(iii) 10.20-10.30 p.m. Calendar with picture of Alsatian dog with brown fur splashed with white.  
Red lolling tongue.

Items	October				November				December				January				Feb.	March	
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of Alsatian dog or wolf.	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	Prev. Post.
2. Mention of brown dog.	— — —	— — —	— — —	— 1 —	— — —	— 1 —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
3. Mention of furry dog.	— 1 —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
4. Total number of dogs <sup>1</sup> of all kinds.	6 10 —	8 5 —	5 3 —	3 10 —	5 4 —	3 4 —	6 — 3	1 — —	5 — —	2 — 1	1 1 1	2 — —	2 — 1	4 — —	8 — —	9 — —	— — —	4 — —	Prev. Post.
5. Mention of fox.	1 — —	— — —	— 1 —	— — —	— — —	— — —	1 — —	— — —	— — —	1 — —	2 — —	1 — —	— — —	— — —	— — —	1 — —	— — —	— — —	Prev. Post.
6. Brown or red animal splashed with white.	— — —	— — —	— — —	— 1 —	— 1 —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> Another dog was shown on 19 December.

TABLE XXXIII (continued)

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
7. Animal's head with pro- truding tongue.	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
8. Other mention of a tongue.	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
9. Animal with ribbon at- tached.	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	Prev. Post.
10. Mention of red ribbon (excluding 9).	— 2 —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	Prev. Post.
11. Mention of ribbon not red or colour unspecified.	1 2 —	— 1 —	— 2 —	1 1 —	2 1 —	— 1 —	— — —	— — —	— — —	— — —	— — —	1 — —	1 — —	1 — —	1 — —	— — —	— — —	— — —	Prev. Post.
12. Mention of a calendar.	— — —	— 1 —	— — —	— — —	— — —	— — —	1 — —	— — —	1 — —	— — —	2 — —	1 — —	— — —	— — —	1 — —	— — —	— — —	— — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

TABLE XXXIII (continued)

13 March—(i) 10.2-10.10 p.m. Yellow plaster duck with orange bill and orange webbed feet; also a small toy greenfinch which pecked when wound up.

Items	October				November				December				January			Feb.	March		
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of yellow duck.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
2. Mention of duck but not yellow. <sup>1</sup>	1	1	—	1	—	—	—	—	—	1	—	1	—	—	—	1	2	—	Prev. Post.
	3	1	1	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	
3. Mention of other yellow bird (including canary).	—	1	1	—	—	—	1	—	1	—	5	—	—	—	—	1	1	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	1	1	—	—	—	—	—	—	2	—	—	—	—	—	—	—	
4. Mention of bird with orange or yellow bill (especially stressed by percipient).	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
5. Mention of goose or swan (excluded from 4).	2	—	2	3	—	—	—	1	—	—	1	2	1	2	1	1	2	1	Prev. Post.
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> Another duck was shown on 31 October.

TABLE XXXIII (continued)

Items	October				November				December			January			Feb.	March			
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
6. Mention of a pecking bird.	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	Prev. Post.
7. Total number of geese, swans, ducks and water birds.	3 — 3	2 — 2	2 — 2	4 — 2	— — 1	2 — 2	1 — —	1 — —	1 — —	3 — 1	1 — —	3 — —	1 — —	3 — —	2 — —	2 — —	3 — 1	1 — —	Prev. Post.
8. Total number of mentions of birds of all descrip- tions.	15 — 21	14 — 23	12 — 15	13 — 11	10 — 10	9 — 13	13 — —	8 — —	8 — —	6 — 1	15 — 10	9 — —	12 — 1	11 — —	9 — —	10 — —	8 — 1	7 — —	Prev. Post.
9. Mechanical bird.	1 — —	1 — 1	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	— — 1	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
10. Mention of feathers or quills and no bird named.	1 — 5	1 — 5	4 — 2	— — 1	2 — 4	1 — 1	2 — —	1 — —	3 — —	1 — —	1 — 1	— — —	— — —	1 — —	1 — —	3 — —	1 — —	— — —	Prev. Post.
11. Word "egg" or "eggs" mentioned but no birds named.	2 — 3	2 — 1	— — 1	2 — —	— — —	— — —	1 — —	2 — —	2 — —	— — —	6 — 3	4 — —	8 — —	3 — —	2 — —	— — —	2 — —	3 — —	Prev. Post.
Numbers of percipients -	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	



TABLE XXXIII (continued)

20 March—10.0-10.10 p.m. Skull and bird.

Items	October				November				December				January		Feb.	March			
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20	
1. Mention of a skull only, excluding those counted in 2, 3, 4.	1 — 2	2 — —	1 — 1	— — —	— — 3	— — —	— — —	3 — —	2 — —	— — —	6 — 1	4 — —	— — —	2 — —	— — —	— — —	2 — —	1 — —	Prev. Post.
2. Mention of a skeleton only.	— — 1	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	Prev. Post.
3. Skull with any object on it.	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — 1	— — —	— — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
4. Skull and bird both mentioned (not associated).	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	1 — —	— — —	Prev. Post.
5. Bird <sup>1</sup> perched on some object.	— — 1	— — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	1 — —	— — —	— — —	1 — —	— — —	— — —	— — —	— — —	— — —	Prev. Post.
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204	

<sup>1</sup> For the total number of birds of all descriptions see 13 March, item 8, or 31 October (i), item 8.

TABLE XXXIII (continued)

Items	October					November					December					January					Feb. March					
	10	17	24	31	7	14	21	28	5	12	19	9	16	23	30	13	13	20								
6. Other impressions connected with death.	1	—	1	—	2	1	—	—	2	—	1	1	2	2	4	2	1	2								
	1	2	1	1	4	—	—	—	—	—	—	—	—	—	—	—	—	—	Prev. Post.							
7. Fear, repulsion, depression, horror, sadness, but excluding ferocity.	3	3	2	3	—	2	—	—	1	4	2	1	—	—	2	1	1	1								
	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	Prev. Post.							
Numbers of percipients	414	386	385	355	327	311	342	313	333	278	288	269	261	250	294	276	252	204								

## APPENDIX IV

(a) In the case of the 27 concrete objects I judged it unwise to ask the percipients to record only a single impression for each ten minute interval. It was obviously important that I should be able to examine all the impressions they thought it worth while to send me. On the other hand, for the purpose of scoring each individual performance it was clearly essential that all percipients should be put, as far as possible, on a common basis. Otherwise a percipient who crowded a large number of impressions into the ten minute interval would have an undue advantage over another who made only a solitary guess.

There naturally arises the question as to what is to be considered as a single impression. After some consideration it seemed that the most natural unit to take was a visualisation or sensation. In what follows I have taken as a distinct impression a group of objects that appear to have been grasped by the percipient as a single mental picture. For instance I have counted examples like the following as single impressions, even though there may be more than one object mentioned :

- (a) Small branch of holly with red berries.
- (b) High white peaks against a dark blue sky.
- (c) An elephant wearing spectacles.
- (d) Pricking sensation in right knee and arm.

In the majority of instances there was no difficulty in counting in this scheme the number of distinct impressions recorded in each ten minute period. A record like the following :

No. 509, 12 December—(i) A chubby child ; a piano ; a melon

would be taken to comprise three distinct pictures or impressions. In a small percentage of cases, however, the matter was not so simple and I have had to use my judgment as to what constituted a single impression. Such an example as "A stone archway which afterwards changed into a bright horseshoe" I have generally counted as two distinct guesses, since there seem to have been two separate mental pictures.

In cases where a percipient recorded more than one distinct visualisation or sensation the following procedure was adopted for the purpose of allocating the individual score. Two dice (one large, one small) were shaken together in a bone cup. In the case where the percipient gave two distinct visualisations or sensations in the same ten minute interval the first of the two impressions was chosen for scoring if the large die turned up an odd number. If the percipient gave three distinct impressions in the ten minutes the first, second or third was scored, according as the large die turned up a number from the three pairs, 1, 6 ; 2, 4 ; or 3, 5. In the case of four impressions the first, second, third or last was scored, according as the pair of dice showed the combinations Oo, Ee, Oe and Eo, the letters O, o referring to the odd faces of the large and small dice respectively and the letters E, e to the even faces. In the case of five or six impressions being given in the same ten minute interval the impression chosen for scoring was determined by the number turned up by the large die. *In the case where there were two concrete objects shown on the same evening a preliminary throw of the dice was made for the purpose of deciding which of the two ten minute intervals was to be chosen for scoring the object in question. When, however, a correct impression was recorded in the same ten minute interval as that in which the corresponding object was shown, this preliminary throw was dispensed with and the guess to be scored was chosen as explained above from this same ten minute interval.* This was done in conformity with my plan to give previsual or post impressions a certain chance with the contemporary ones. Thus it might happen that the two impressions chosen for scoring, although referring to different objects, were contained in the same ten minute interval.

It must be clearly understood that the above scheme only applies to the allocation of the individual numerical scores and that *no such restrictions of choice were made in constructing the Object Tables XXXIII.* In making these tables *all the guesses were included that occurred in the same ten minute interval.* Moreover, in the sections entitled "Further consideration of the 27 objects" (p. 232) and "A few typical impressions" (p. 235) *all guesses have been taken into consideration in choosing the successes.*

In view of the fact that all impressions recorded in the same ten minutes were included in the object tables, it was necessary to make some further investigations on the *average* number of impressions recorded in a ten minute interval. There were altogether with the whole 579 percipients 8784 ten minute intervals in which impressions were recorded bearing on the 27 objects. The average number of impressions noted per ten minute interval was 1.85. The distribution of these numbers of visualisations is not at all of

the normal type. It is roughly indicated by the following percentages :

Number of impressions per ten minute interval.	Percentage number of intervals.
0	6.3%
1	44.3%
2	25.2%
3	12.2%
4	6.3%
5	3.0%
6	1.5%
<i>Exceeding 6 impressions</i>	<i>1.1%</i>
	$8784 = 100\%$

The tables showing the analysis for each individual percipient have been preserved and may be examined by anyone wishing to do so. The variability of the distribution, it will be seen, is very wide (S.D. = 1.4 approximately).

The average number of impressions per ten minute interval varies considerably week by week. The highest is 2.48 on 13 February and the lowest 1.49 on 16 January and 24 October (each date). As regards the numbers given in the object tables, it will be obvious that the average guessing chance per percipient is considerably higher on say 13 February than it is on 24 October. It is therefore necessary to reduce the actual numbers of percipients who took part each week to the corresponding effective numbers as regards guessing power. We have seen that the average number of impressions per ten minute interval is 1.85. This is also the average for the week 13 March. We may take the number of actual percipients on 13 March (252) as our standard number and modify the remaining actual numbers in a proportion varying with the average weekly guessing power. We thus obtain the following table :

TABLE XXXIV

		October					November		
		10	17	24	31	7	14	21	28
Actual numbers	-	414	386	385	355	327	311	342	313
Effective numbers	-	435	320	308	298	271	261	304	282

TABLE XXXIV (continued)

		December			January			Feb.	March	
		5	12	19	9	16	23	30	13	20
Actual numbers	- -	333	278	288	269	261	250	294	276	252
Effective numbers	- -	380	350	317	242	209	305	347	370	249

(b) *Additional statistics.*—I record here very briefly the results of a few other counts I have made in connection with the 374 percipients with possible scores  $\geq 300$ .

1. Average possible score for the 374 percipients = 682  
     160 psychics = 705  
     214 non-psychics = 665.

It will be seen that the psychics have done slightly more work than the remainder of the group.

2. I have worked out the average number of visualisations per ten minute interval for each of the 374 percipients on the object intervals.

The mean average per percipient = 1.64.

The distribution of the 374 averages is of the normal type with a certain skewness (S.D. = .85).

For the 160 psychics the mean of the averages is 1.97. There seems definite evidence that on the whole the psychics tend to give more impressions per ten minute interval than the remainder of the group.

3. The average number of impressions (visualisations, auditions, etc.) for the 374 percipients on the objects is 33.5 (S.D. = 20). For the men the average is 33.2 (S.D. = 21).

For the 160 psychics the average is 38.0.

Again, we see that on the 27 objects the psychics appear to have averaged more guesses than the remainder. This is a sign of keener enthusiasm among those who claim to psychic powers.

(c) *Explanation of tables.*—These preference tables are based on the 8784 ten minute intervals in which objects guesses were made, the 2705 geometrical impressions selected for scoring, and the 2394 capital letter guesses.

Let us take first the Tables A-G. The numbers given in the second column under the heading  $p=1$  in are obtained by dividing 8784 by the total number of times each item is mentioned by the 579

percipients.<sup>1</sup> It will of course be understood that if a percipient mentioned the *same* item more than once in the *same* ten minute interval his impression would only be counted once. If, however, the percipient registered say "flowers" in two ten minute intervals on the same evening, two impressions would be contributed to the total count for Item 1 (flowers).

The number 18 in the second column opposite Item 1 for instance gives the average chance of guessing any sort of flower or flowers in a ten minute interval as  $1/18$ .

This value  $1/18$ , however, is merely that obtained by observing the guesses of a limited number of people (579) spread over a limited interval of time. To get the true value of  $p$ , the chance of guessing a flower we should have to experiment with a whole population at varying times of the year. The value  $p=1/18$  therefore can only be considered as an approximation obtained from a sample of the population. And even this sample may not be a truly representative one. But assuming that it is a fairly representative sample we may deduce from this observed value limits between which the true value probably lies.

Let  $p$  be the observed chance (Column 2). Then if the true value of  $p$  is  $p^1$  the observed value  $p$  obtained from  $N$  observations will not often lie outside the limits

$$p^1 \pm 2\sqrt{\frac{p^1(1-p^1)}{N}}, \text{ i.e. } p^1 \pm 2 \times \text{standard deviation.}$$

The limits for the true value are therefore the roots of the quadratic

$$(N+4)(p^1)^2 - 2(pN+2)p^1 + Np^2 = 0.$$

If  $N$  is large (say 2000) a good approximation is given by

$$p^1 = p + \frac{2}{N} \pm \sqrt{\frac{2p(1-p)}{N}},$$

and from this formula with  $N=8784$  the limits between which the true value of  $p^1$  for each item most probably lies have been calculated. These limits are given in Column 3.

In cases where the observed value of  $p$  is less than 1 in 1757 I have thought it not worth while to give either the observed value or the limits, as these would be too wide and inaccurate to be of any value. A blank has therefore been left opposite items where  $p$  works out to be less than  $1/1757$ .

The above tables (A-G) are constructed on the assumption that on an average each percipient makes 1.85 visualisations or sensations

<sup>1</sup> In counting the number of mentions for any particular item in Table XXXIII the numbers in italics are omitted since they correspond to stray impressions recorded during a geometrical or three-figure test, etc.

per ten minute interval. If it is required to find what is the chance of guessing any given item with a solitary visualisation there will be no serious error if the limits in Column 3 are divided by 1.85.

In the case of Tables H and I the assumption is that each percipient makes a solitary guess at a geometrical sketch or capital letter, since where two guesses were made by a percipient only the first was chosen.

The numbers given opposite each item in the last column under the heading  $-10 \log_{10} p$  are intended to be used as scores for successful guesses if this experiment is ever repeated, using the objects given in the table and under similar conditions. Such a system of scores, it is believed, will prove more rational than the arbitrary system employed in the present experiment.

In conclusion, it should be borne in mind that the present tables cannot be accepted in any sense as final. They represent merely the best I have been able to do with the material at my disposal. Many assumptions have been admitted as to the independence of the different object guesses, but such assumptions are almost unavoidable under existing circumstances.

But even with these manifold limitations it is hoped that they will enable future experimenters to give a rough estimate of the probability of an average person successfully guessing an object concentrated on by an agent.



TABLE XXXV

Items.	$p=1$ in	The true value of $p$ probably lies between	$-10 \times$ $\log_{10} p$ .
<b>A. FLOWERS AND FRUIT, ETC.</b>			
1. Mention of flowers of any kind -	18	.05—.06	12.5
2. Mention of red flowers of any kind - - - - -	172	.004—.008	22.3
3. Mention of yellow flowers of any kind - - - - -	149	.006—.008	21.7
4. Mention of any pure white flowers - - - - -	144	.006—.008	21.6
5. Artificial flowers of any kind -	732	.001—.002	28.6
6. Mention of poppies - - - -	976	.0005—.002	29.9
7. Chrysanthemums of any kind -	183	.004—.007	22.6
8. Rose of any kind - - - -	122	.0065—.010	20.9
9. Red rose or roses - - - -	439	.0015—.0035	26.4
10. Any mention of leaves (including ferns and holly) - - - -	89	.009—.014	19.5
11. Mention of holly - - - -	732	.001—.002	28.6
12. Mention of mistletoe - - -	—	—	—
13. Oak tree, oak leaf, oak wood, oak furniture and acorn - - - -	439	.0015—.0035	26.4
14. Berries of any kind - - - -	1098	.0005—.0015	30.4
15. White berries - - - - -	—	—	—
16. Fruit of any kind - - - -	50	.017—.023	17.0
17. Apple of any kind - - - -	166	.0045—.0080	22.2
18. A red or rosy apple - - -	878	.0005—.0020	29.4
19. An orange or oranges - - -	209	.0035—.0065	23.2
<b>B. BIRDS, ETC.</b>			
20. Bird or birds of any kind - -	30	.030—.0375	14.8
21. Yellow bird (including canary) -	549	.001—.003	27.4
22. Water bird of any kind - -	187	.004—.007	22.7
23. Ducks, geese and swans - -	244	.003—.0055	23.9
24. Duck of any kind - - - -	517	.001—.003	27.1
25. Yellow duck - - - - -	—	—	—
26. Goose or geese - - - - -	1255	.0005—.0015	31.0
27. Peacock, peacock's tail and pea- cock's feathers - - - -	554	.001—.003	27.4
28. Any mention of feathers or quills	157	.005—.0085	21.9
29. Mention of egg or eggs - -	231	.003—.006	23.6
29A. Bird perched on any object -	—	—	—
<b>C. ANIMALS, ETC.</b>			
30. Dog of any kind - - - -	79	.01—.015	19.0
31. Wolf and Alsatian dog - - -	—	—	—
32. Brown dog - - - - -	—	—	—
33. Dog wearing hat or cap - -	—	—	—
34. Attention drawn to the fur or shagginess of a live animal -	517	.001—.003	27.1
35. Bear of any kind - - - -	1756	.0005—.0015	32.5
36. Rabbits and hares - - - -	220	.0035—.006	23.4

TABLE XXXV (continued)

Items.	$p=1$ in	The true value of $p$ probably lies between	$-10 \times$ $\log_{10} p$ .
37. Any animal playing with ball -	—	—	—
38. Any animal dressed up (wearing clothes, trappings, spectacles, etc.) -	—	—	—
39. Any animal with a stick or toy animal on stick -	923	·0005—·002	29·6
40. Any animal rampant (including heraldic lion) and rearing or jumping animal -	732	·001—·002	28·6
41. Monkey and ape -	351	·002—·004	25·4
42. Horse and pony -	111	·0075—·0115	20·4
43. Monkey and organ -	—	—	—
44. Horseshoe -	799	·0005—·002	29·0
45. Blacksmith -	—	—	—
46. Fox -	1098	·0005—·0015	30·4
47. Any reptile (including snake, lizard, frog, toad, crocodile) -	204	·0035—·0065	23·1
48. Snake or serpent -	399	·0015—·0040	26·0
49. Crocodile or alligator -	1464	·0005—·0015	31·6
50. Mention of an open jaw or mouth	1255	·0005—·0015	31·0
51. Rows of teeth or jaw with teeth	1757	·0005—·0015	32·5
52. Kangaroo -	—	—	—
53. Marsupial of any kind -	—	—	—
54. Animal with ribbon attached to it -	—	—	—
55. Mention of bird pecking -	—	—	—
56. Any reference to an animal's tail	1464	·0005—·0015	31·6
56A. Cat or kitten -	84	·010—·015	—
56B. Lion or lion's head -	338	·0025—·0040	—
56C. Elephant or elephant's trunk -	358	·0020—·0040	—
D. COLOURS			
57. Mention of yellow, gold or orange object, and of these colours themselves -	22	·04—·05	13·4
58. Mention of a red object or of colour red itself -	23	·04—·05	13·6
59. Mention of a blue object or of colour blue itself -	30	·03—·04	14·8
60. Mention of a green object or of colour green itself -	33	·025—·035	16·2
61. Blue and green objects or colours blue and green -	16	·06—·07	12·0
62. Yellow chrysanthemums -	799	·0005—·002	29·0
E. MUSICAL INSTRUMENTS, MUSIC, DANCING, ETC.			
63. Mention of any musical instru- ment -	35	·025—·035	15·4
64. Any stringed instrument -	122	·0065—·0100	20·9

TABLE XXXV (continued)

Items.	$p=1$ in	The true value of $p$ probably lies between	$-10 \times$ $\log_{10} p$ .
65. Violin and 'cello - - -	214	·0035—·0065	23·3
66. Banjo, mandolin, guitar and lute	799	·0005—·0020	29·0
67. Any kind of musical box or barrel organ - - -	732	·0010—·0020	28·6
68. Any impression relating to music or singing or to any musical instrument - - -	27	·030—·040	14·3
69. Any mention of dancing - -	195	·004—·007	22·9
70. Baby's rattle, police rattle or objects rattled - - -	1098	·0005—·00150	30·4
71. Clinking or jingling sound or sound of glass or metal -	439	·0015—·0035	26·4
F. IMPRESSIONS CONNECTED WITH FOREIGN COUNTRIES			
72. Impressions immediately con- nected with Italy - - -	1464	·0005—·00150	31·6
73. Any impression directly asso- ciated with Egypt ( <i>e.g.</i> Sphinx, mummy, Pharaoh, etc. - - -	314	·0020—·0045	25·0
74. Any impression directly con- nected with Australia ( <i>e.g.</i> kangaroo, boomerang, Maori) -	—	—	—
75. Impressions directly connected with China and Japan ( <i>china</i> pottery is excluded) - -	116	·0065—·0100	20·6
77. Any impression directly con- nected with the East - - -	52	·018—·021	17·0
78. Any impressions directly con- nected with Red Indians ( <i>e.g.</i> wigwam, moccasin, etc.) -	676	·0010—·0025	28·3
79. Chinese or Japanese lantern or paper lantern - - -	1255	·0005—·0015	31·0
80. Head or face only of Negro, Mon- gol, Hindoo or other coloured native - - -	676	·0010—·0025	28·3
G. MISCELLANEOUS OBJECTS			
81. Mention of the word "ball" -	83	·010—·015	19·2
82. Mention of any globular object (including apples, balls, globes, etc.) - - -	32	·025—·035	15·0
83. Spectacles, pince-nez, or goggles in any connection - - -	176	·0045—·0075	22·5
84. Any animal wearing spectacles -	—	—	—
85. Any mask, grotesque face, comic face or gargoye - - -	251	·0030—·0055	24·0
86. The word "mask" - - -	366	·002—·004	25·6

TABLE XXXV (*continued*)

Items.	$p=1$ in	The true value of $p$ probably lies between	$-10 \times$ $\log_{10} p$ .
87. Mention of a long, large or peculiar nose - - -	—	—	—
88. Any mention of the words "nose" or "snout" - -	1464	·0005—·0015	31·6
89. Mention of clown or jester or jester on a stick - - -	1757	·0005—·0015	32·5
90. Any mentions of Punch and jester - - -	627	·0010—·0025	28·0
91. Mention of Judy, Jack-in-box and marionettes - - -	—	—	—
92. Mention of ordinary tape or of measuring tape and any men- tions of measuring land or cloth - - -	1098	·0005—·0015	30·4
93. Rope or string or ribbon or tape, etc. being stretched or pulled out or wool, etc. being wound or unwound - - -	878	·0005—·0020	29·4
94. Mention of any kind of ribbon -	439	·0015—·0035	26·4
95. Mention of any red ribbon - -	—	—	—
96. Mention of pole or long staff -	799	·0005—·0020	29·0
97. Any stick, walking stick, rod, mace, pole, cue, rake, cane, staff, handle of broom or brush, lance - - -	97	·008—·013	19·9
98. Mention of ordinary cup and saucer (porcelain or ordinary crockery) - - -	338	·002—·0045	25·3
99. Cup alone or saucer alone - -	231	·003—·006	23·6
100. Any impression of tea or cup and saucer or tea urn or tea cosy or tea pot or kettle -	85	·0095—·0145	19·3
101. Mention of a calendar - -	1255	·0005—·0015	31·0
102. Mention of a tongue of any kind - - -	—	—	—
103. Mention of a bell-shaped object (e.g. harebell) and all men- tions of church bell, school bell and hand bell - - -	351	·002—·004	25·4
104. A fan or fan-shaped object (electric fan excluded) - -	244	·003—·0055	23·9
105. An explosion, burst or bang or a bomb - - -	627	·0010—·0025	28·0
106. Fireworks of any kind, crackers, gunpowder and any mention of bonfires or 5 November and Guy Fawkes - - -	314	·0020—·0045	25·0
107. Mention of burnt paper or burn- ing paper - - -	1464	·0005—·0015	31·6
108. Mention of burning of any kind	314	·0020—·0045	25·0

TABLE XXXV (continued)

Items.	$p = 1$ in	The true value of $p$ probably lies between	$-10 \times$ $\log_{10} p$ .
109. Sparks or coloured lights from fireworks in action - -	1098	·0005—·0015	30·4
110. Fireworks of the sparking type (whether in action or not) -	517	·001—·003	27·1
111. Sparks or scintillations of any kind (whether from fireworks or not) - - - -	799	·0005—·002	29·0
112. Stars of any kind (real or artificial) - - - -	251	·0030—·0055	24·0
113. Mention of smoke or steam -	220	·0035—·0060	23·4
114. Mention of a balloon -	488	·0010—·0035	26·9
115. Mention of parachute - -	—	—	—
116. Paper streamers or paper flying about - - - -	1464	·0005—·0015	31·6
117. Fragments of paper or crumpled paper but not blown about -	1255	·0005—·0015	31·0
118. Tobacco pipe of any kind -	209	·0035—·0065	23·2
119. A pipe alight or in mouth -	461	·0015—·0035	26·6
120. A yacht or ship with sails -	220	·0035—·0060	23·4
121. A ship or boat of any sort -	76	·01—·015	18·8
122. Any boat or ship with a human figure visible on it - - -	—	—	—
123. Conical hat (e.g. dunce cap) -	1255	·0005—·0015	31·0
124. A red hat or cap of any kind -	1464	·0005—·0015	31·6
125. A paper cap or hat or a fool's cap, conical hat or Chinese hat or any comic hat - - -	799	·0005—·002	29·0
126. A man's tall hat or silk hat -	314	·0020—·0045	25·0
127. A cap (fool's cap or paper hat excluded) - - -	366	·0020—·0040	25·6
128. A head-covering of any kind (including hat, cap, helmet, turban, fool's cap, paper hat, etc.) - - - -	74	·010—·015	18·7
129. Mention of hammer or mallet, or of blows from same - -	586	·0010—·0030	27·7
130. Mention of scissors - - -	191	·0040—·0070	22·8
131. Mention of any wheel - - -	187	·0040—·0070	22·7
132. A wheel revolving - - -	488	·0010—·0035	26·9
133. A handle being turned or a machine wound up - - -	976	·0005—·0020	29·9
134. All impressions of rotation -	102	·008—·012	20·1
135. Mention of honeycomb or cell-work or a drawing of cells, lattice-work, mesh-work or honeycomb - - - -	976	·0005—·0020	29·9
136. Pearls, white beads, white berries	462	·0015—·0035	26·6
137. All mentions of pearls, beads, strings of beads, berries and necklaces - - - -	122	·0065—·0100	20·9

TABLE XXXV (continued)

Items.	$p=1$ in	The true value of $p$ probably lies between	$-10 \times$ $\log_{10} p$ .
138. Mention of any specific metal or of metal generally, or of any object well known to be made entirely of metal - - -	20	.045—.055	13.0
139. The words "iron" or "steel" -	237	.003—.006	23.7
140. Mention of knife, sword, dagger -	166	.0045—.0080	22.2
141. Mention of axe, chopper, hatchet, adze or of chopping - -	1464	.0005—.0015	31.6
142. Mention of a grindstone - -	—	—	—
143. Mention of golf club or of a club used as a weapon - - -	1255	.0005—.0015	31.0
144. Mention of night or darkness or blackness or of a dark back- ground without mention of a light	169	.0045—.0080	22.3
145. Mention of a gollywog - - -	676	.0010—.0025	28.3
146. Skull or skeleton - - -	231	.0030—.0060	23.6
147. Impressions immediately suggest- ing death (e.g. mummy, skull, coffin, cenotaph, dagger) but excluding mere suggestions of fear and foreboding where the threat of death is not obvious -	129	.0065—.0100	20.7
148. All impressions of fear, horror, repulsion, depression, ferocity, foreboding of evil and all ideas obviously suggesting or sym- bolising death or danger - -	76	.0100—.0150	18.8
149. Any object resting on a skull -	—	—	—
150. Man nodding head or moving head to and fro or a rhythmic nodding of heads - - -	—	—	—
151. Mention of any mechanical toy or working model of a machine	237	.0030—.0060	23.7
H. GEOMETRICAL SKETCHES			
152. Any simple triangle, scalene or isosceles - - - -	6.94	.132—.158	8.4
153. Two non-overlapping triangles, with a common vertex and their bases parallel - -	75	.0095—.0185	18.7
154. A shield of David - - -	44	.018—.030	16.4
155. Maltese cross - - -	104	.0065—.0140	20.2
156. Triangle in a circle - - -	82	.0085—.0170	19.1
157. Pentagon of any kind (regular or irregular) - - - -	69	.01—.02	18.4
158. Hexagon of any kind (including hexagonal prism) - - -	46	.017—.028	16.6
159. Octagon of any kind (including octagonal prism) - - -	45	.017—.029	16.5
160. Any polygon with five or more sides (including polygonal prisms) - - - -	17	.050—.068	12.3

TABLE XXXV (continued)

Items.	$p=1$ in	The true value of $p$ probably lies between	$-10 \times$ $\log_{10} p$ .
161. A cone - - - -	44	·018—·030	16·4
162. A pyramid (including tetra- hedron) - - - -	60	·012—·022	17·8
163. Pentacle and all five-pointed stars	193	·0030—·0085	22·9
164. Any star-drawing with more or less than five points (excluding no. 154) - - - -	48	·016—·027	16·8

I. CAPITAL LETTERS<sup>1</sup>

Letter.	$p=1$ in	The true value of $p$ probably lies between	$-10 \times$ $\log_{10} p$ .	Letter.	$p=1$ in	The true value of $p$ probably lies between	$-10 \times$ $\log_{10} p$ .
A -	13·7	·06—·09	11·4	N -	53·2	·015—·025	17·3
B -	13·7	·06—·09	11·4	O -	26·3	·03—·045	14·2
C -	20·5	·04—·06	13·1	P -	19·6	·04—·06	12·9
D -	32·8	·025—·04	15·2	Q -	42·7	·02—·03	16·3
E -	29·9	·025—·04	14·8	R -	21·2	·04—·055	13·3
F -	29·9	·025—·04	14·8	S -	16·5	·05—·07	12·2
G -	20·5	·04—·06	13·1	T -	25·7	·03—·045	14·1
H -	20·3	·04—·06	13·1	U -	119·7	·005—·015	20·8
I -	82·6	·008—·020	19·2	V -	28·8	·025—·045	14·6
J -	36·8	·020—·035	15·7	W -	26·3	·03—·045	14·2
K -	29·2	·025—·04	14·6	X -	33·2	·025—·04	15·2
L -	23·5	·035—·05	13·7	Y -	54·4	·015—·025	17·4
M -	17·0	·05—·07	12·3	Z -	36·8	·020—·035	15·7

<sup>1</sup> It must of course be clearly understood that sections H and I of this table are calculated on the basis of a single guess for each percipient per ten minute interval, and further that the percipients were told to think of a capital letter and of a geometrical sketch, respectively.